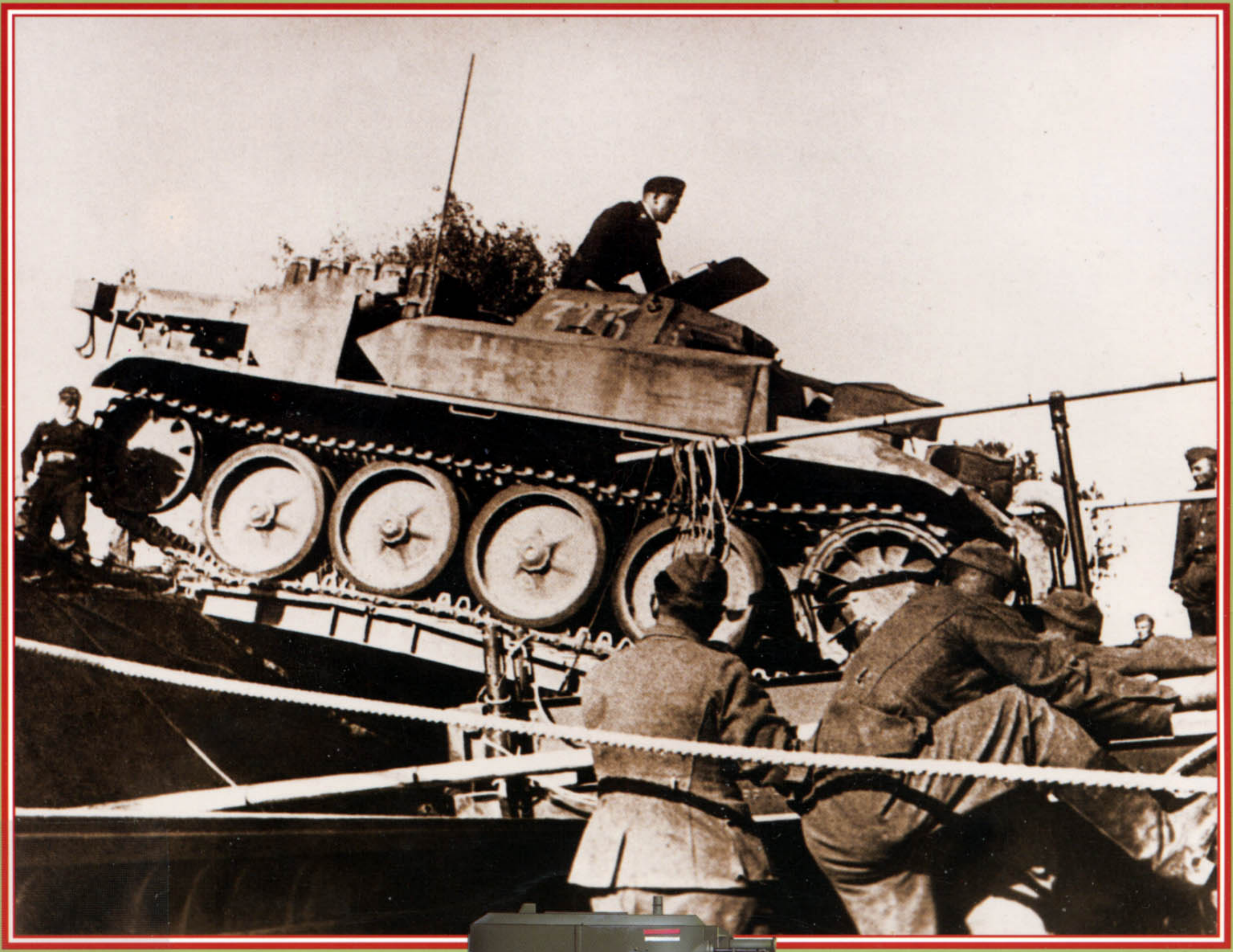
ARMOR AT WAR SERIES

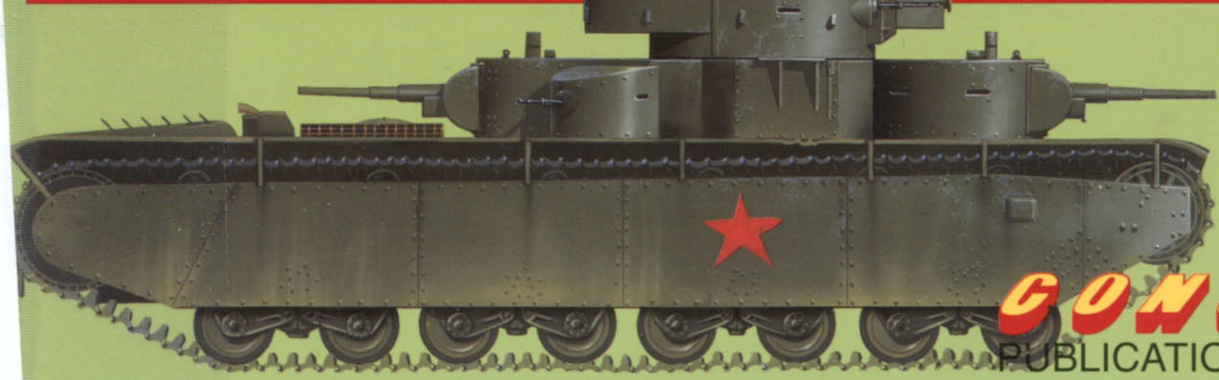
7019

Armor Battles on the Eastern Front

(1) The German High Tide 1941-1942

Robert Michulec





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(1) The German High Tide 1941-1942

Text by Robert Michulec
Color plates by Arkadiusz Wróbel & Wojciech Kloñski

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INTRODUCTION

There is no doubt that the clash of armored forces on the Eastern Front during World War II was the greatest such encounter between similar opposing forces in the history of modern warfare. Since this situation was quite similar to the air war over Western Europe, it could be said that the war in Western Europe was won by the Allies thanks to combat aircraft, while the war in Eastern Europe was won by the Soviets thanks to tanks. If the war in Western Europe showed how modern air warfare looked, the war on the Eastern Front typified the image of modern warfare on the ground. Almost four years of war changed the style of warfare, but it is interesting to note that these changes, though small, were very important. They constituted the next step in the evolution of the pre-war concept of armored warfare.

When Germany attacked the Soviet Union, both sides had armored forces that were similar in many ways, and both sides had similar attitudes toward armored warfare, as well. Both countries possessed hundreds of tanks, which composed the main and the most important part of the armored forces, while there were very small numbers of other kind of armored vehicles. Their self-propelled guns were weak, sometimes even obsolete (the German sIG 33 on the Pz.Kpfw. I chassis, for example), and there was a very small number of them. The anti-tank guns, which had to be towed and were usually not very powerful (37mm and 45mm), were fitted with short guns. At that time both sides had one main half-track armored personnel carrier (APC), but the Germans built it (the Sd.Kfz. 251) in small numbers, and the Soviets did not build theirs (the B-3) in a series at all.

Both sides had used their armored forces in almost the same manner, too, according to the canons elaborated in the 1930s, when specialists were impressed by the sight of hundreds of charging tanks. However, Germany was a "Western nation" with vast military experience, including two previous "Blitzkriegs", so they used their Panzerwaffe in a more sensible way.

During operations in the summer of 1941, the German divisions were divided into battle groups composed of tank, anti-aircraft, anti-tank, infantry and other sub-units. Even though many of them were equipped with towed guns, and though there were too many trucks and too few tractors and light armored vehicles, the Germans were very successful due to the armor tactics employed by the Panzerwaffe. The art of modern warfare employed by the Germans across the Soviet fields and steppes gave them complete superiority over the enemy and accounted for the brilliant successes won during Operation "Barbarossa".

In contrast, the Soviet art of war at the end of the 1930s was just the opposite of Germany's. They had great difficulty understanding modern warfare. This was not the fault of the famous purges of the late 1930s, as has been the belief held for many years all around the world. The chaos of the second half of the 1930s was a political matter, not a military one. Though it caused 2-3 year delays in the development of different sorts of Soviet armed forces, it did not ruin the Red Army. It was a primitive organization since its inception, partly because the art of warfare in pre-Bolshevik Russia was not one of the greatest.

Although the Soviets employed many modern measures of warfare in the Red Army, they were unable to use them successfully because the army was organized too simple. For instance, the Soviets had a great number of tanks, but a lot of them had no radio equipment. All of the combat formations of the Soviet Bronetankovije Vajska (armored forces) had shortfalls because the Red Army command did not think that logistical matters were important, just the opposite of what the commanders of the Western armies believed. Also, they did not understand that the armored divisions and corps could achieve success only when different types of units cooperated together. Therefore, in the summer of 1941 the Red Army had dozens of independent brigades of artillery, while there was a lack of tractors and guns in the sub-units of armored divisions. So, the Germans could first destroy regiments and battalions armed with tanks and then smash anti-tank brigades, which usually were not covered by anti-aircraft units because these were organized in other brigades that were employed in other sectors of the front. Though the anti-tank brigades were powerful, they were not supported by infantry, artillery or tank units, so they were very static in battle and had to settle combat by gun duels that were very costly to them.

All these small and large weaknesses of both armored forces in 1941 were also the result of pre-war thinking about the place of armor in modern warfare. During the early campaigns of the war, the tank was just a tool in the hands of the infantry. Divisions equipped with tanks had to break through enemy positions, make a fight and then wait for their own infantry divisions, which reactivated the permanent front line. It could be said, then, that the tank worked for the infantry. But by the time the second year on the Eastern Front had passed, the style of warfare had almost completely changed and the infantry began to cooperate closely with the armored forces, which had begun to play first fiddle. The tanks were supported by self-propelled guns, infantry in armored divisions started to use larger numbers of APCs, and heavy artillery batteries could change their battle stations very quickly thanks to tracked vehicles. Even the infantry divisions had their own armored units, many of which had companies of self-propelled tank destroyers on tracks. These tank destroyers, which were the advance units during an assault, were supported by a unit of self-propelled, heavily armored assault guns (Germans) and tanks (Soviets).

Even more interesting is that all these new concepts were put into practice during the third year of the war, on the Ukrainian fields of battle, where an almost completely new style of armored warfare was born. At the beginning, the conflict consisted of a clash of strong enemy forces, without any permanent front line, trying to out maneuver each other, with the infantry having only a supporting role. In this type of battle only equipment that moved on tracks was suitable for combat; feet (and hoofs) of the infantry were too slow and weak, and wheeled vehicles were too susceptible to enemy fire and inadequate for difficult terrain. Thus the Eastern Front, where the fighting took place under very difficult conditions — muddy seasons, heavy winters and almost desert-like terrain and weather, helped to create modern warfare.

The experience of armored warfare on the Eastern Front in World War II also showed how the tank should be constructed and produced. When the German-Soviet war erupted, the best tanks were on the side of the "Reds". The famous T-34 was very good, but due to the praise given to it by Generaloberst Heinz Guderian this tank was somewhat overrated. There is no doubt that it was an example of excellent tank construction at the beginning of 1940s, but its combat capabilities were not as great as the Soviets claimed. In this matter the T-34 tank overwhelmed older German main battle tanks of course, but their superiority was slight. Anti-tank rounds from the T-34's guns could penetrate about 60-70 millimeters (2.4-2.8 inches) of vertical plate at a range of 500 meters (547 yards), while 5cm rounds from the Pz.Kpfw. III's gun could penetrate 50mm (2-inch) armor plate at 30° from vertical, so the armament of the German tank had similar capabilities to the Soviet L-11/F-32 guns. The same difference existed when the capabilities were compared at a range of 1,000 meters.

A similar problem existed regarding the armor of both armies' main battle tanks. Guderian wrote that only the rear plate of the T-34 could be penetrated by German rounds, but its frontal armor was the same thickness as the rear (i.e., 45mm [1.8 inches])! On the other hand, a famous Soviet general, Rokossovski, wrote in one of his reports that the side armor of the T-34 was penetrable by German rounds fired from anti-tank guns. But the side armor was 45mm thick, the same as the rear or frontal armor. It is also interesting to note that the T-34 had 45mm thick frontal armor at 45° from vertical, and many of the German medium tanks (Pz.Kpfw. III and Pz.Kpfw. IV) had nearly vertical 60mm (2.4 inch) plates at the front, so the T-34 frontal armor — after recalculating — was only about 5mm thicker. This means that during a face-to-face gun duel, the crew of a T-34 had only slight combat superiority over the Pz.Kpfw. III at ranges between 500-1,000 meters.

It should be remembered, though, that the T-34 also had a very poor ventilation system (especially for the men in the turret), weak radio equipment (there was a period when there was no radio in the tanks at all) and optical equipment, especially those used for sighting the gun. There was no commander cupola until almost the end of 1943, and the quality of steel used for production of armored plates was weak in many series of this tank. So, during the first months of the war, German gunners had more trouble with the KV-1 tanks, which had the same gun as the T-34 but much thicker armor.

After the Germans introduced long guns into their tanks and self-propelled guns in the spring of 1942, the Soviet tanks, especially the T-34, became a smaller problem. After the spring of 1943, when the Pz.Kpfw. V entered combat and the 8.8cm gun began to be installed in tracked vehicles, there was no longer a problem with Soviet armor. The second half of 1943 would be the best proof of this. While at the beginning of July 1943 the Soviets had 9,918 tanks and self-propelled guns in service at the fronts (there were at this time about 20,000 tanks in the Bronetankovije Vojska), by the beginning of January 1944 they only had 5,357 tanks and self-propelled guns. But a huge increase in production provided the Red Army with about 15,000 tanks and self-propelled guns in 6 months! The total losses of the Red Army armored forces in 1943 were 23,500 tanks and self-propelled guns, of which almost 20,000 were lost during the second half of this year! In the same period the Panzerwaffe lost only 4,700 tanks and self-propelled guns on all fronts.

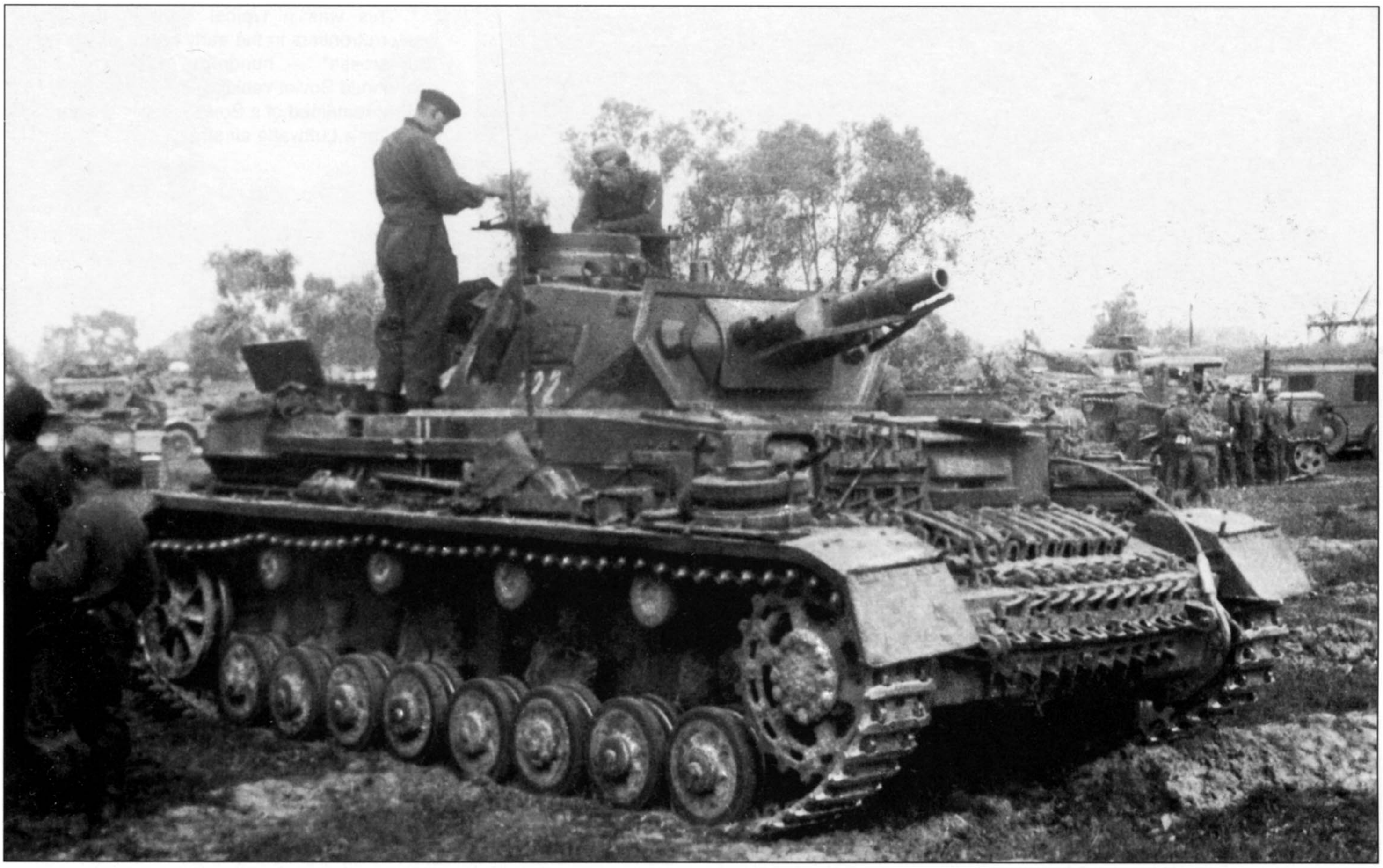
Even after the introduction of heavy tanks and self-propelled guns, the Soviets could not change such statistics. The 85mm gun installed in the T-34 and SU-85 was too weak, and its ballistic capabilities were more similar to the German, British or American 75mm guns than the 88/90mm guns. The IS-2 was powerful, but its 122mm gun was comparable to German 8.8cm or American 90mm guns, and it was subject to more problems than the Western weapons, and the IS-2 was of weaker construction than German heavy tanks. The IS-2 tanks could not shoot on the move and were often completely demolished by anti-tank hits, but the German Pz.Kpfw. VI B "Tiger" had no such limitations. So, in 1944, the Soviets lost 23,700 tanks and self-propelled guns. During the operations and battles won by the Soviets during that year, the Panzerwaffe lost almost 100% more tanks and self-propelled guns than in the previous year, but the total losses were still lower than Soviet losses — 12,000 tanks and self-propelled guns, about 2/3 of them on the Eastern Front.

The Germans were able to maintain this high kill-loss ratio throughout the entire armored struggle on the Eastern Front thanks to better equipment, armament, organization and quality of troops. It is easy to see proof of this as we compare the results of the many confrontations and the use of similar weapons by each of the opposing forces, for instance anti-tank artillery in 1944. As of 1 May 1944 the Germans had 11,500 5-8.8cm anti-tank guns, while as of 1 January 1944 the Soviets had . . . 32,000 45-57mm anti-tank guns, and nearly 34,600 pieces of 76.2mm guns (mainly the ZIS-3), which were very good anti-tank weapons. So, even though the Soviets had many more anti-tank guns than the Germans, they were usually weaker than the German guns. That same year the Red Army received 6,400 anti-tank guns, 17,300 pieces of 76.2mm guns (mostly the ZIS-3), and 34,700 tanks and self-propelled guns. But the Soviets were still unable to successfully use such a great number of guns. At the same time, however, the Heer (German Army), which was fighting on two fronts, received only 14,000 tanks and self-propelled guns and had to put into action poorly trained tank crews in their Panzer divisions, lost air cover over the Eastern Front, and relinquished captured ground, while losing many tanks and self-propelled guns to minor damages and the lack of fuel.

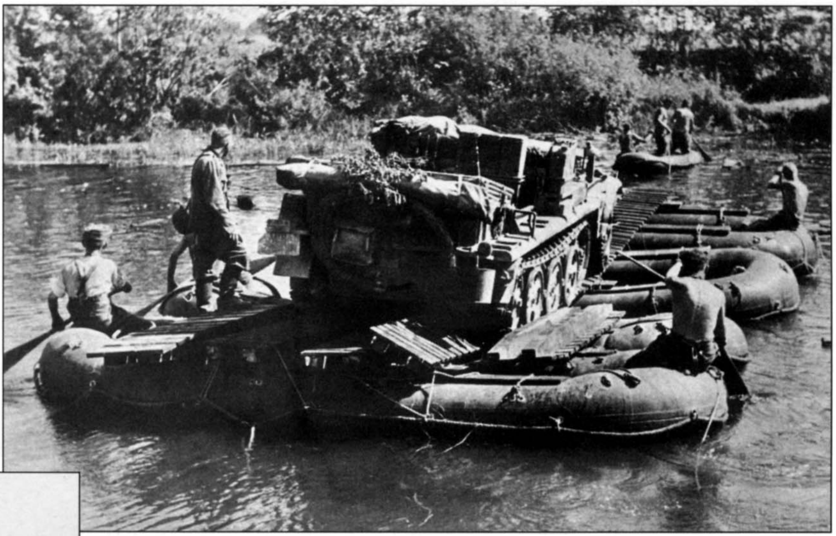
It is easy to conclude that the Soviets learned almost nothing throughout the whole war. Their Bronetankovije Vojska was always big, but it was useless as a successful, modern weapon. They always suffered huge losses and usually won only minor victories. If the Soviets had not enjoyed a large numerical superiority, they could not have won any battle against the Panzerwaffe. Interestingly, however, the Soviets believed for years that their armored forces fought properly, so they saw no need for changes in their style of armored warfare. Oddly, just after the war the Soviets developed a wheeled armored personnel carrier (the BTR-152) for use by the Red Army motorized infantry, even though the experience during the armored warfare on the Eastern Front showed that there was more of a need for fully tracked vehicles. This same odd attitude toward armored combat was evident in the Arab armies during the wars in the Middle East in 1967 and 1973, as well as in the Persian Gulf in 1991.

The Germans had just the opposite experience. Their armored forces were much more successful throughout the war, and the Panzerwaffe seems to have evaluated their mistakes, actually learning from the lessons taught to them during armored combat on the Eastern Front. It would probably be safe to say that the experience on the Eastern Front helped the Germans to develop the concept of armored warfare that is currently employed in the West today.

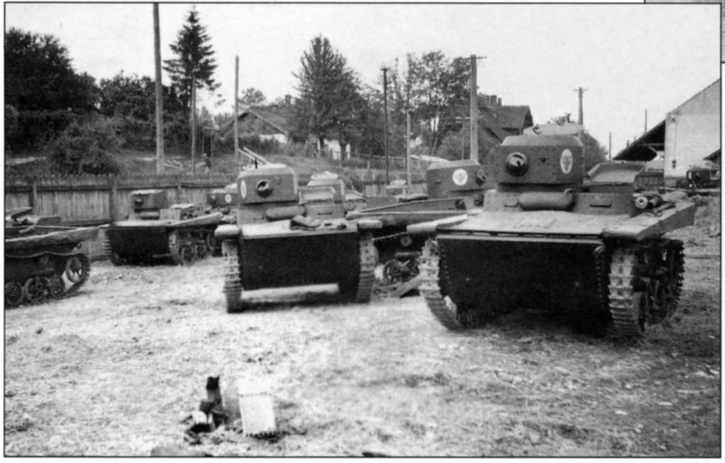
All photos used in this book are from the Military Institute of History, Central Military Archive, Military Photo Agency and the personal collections of the following persons: S. Zaloga, T. Kopanski, R. Bock, and the author. I would like to thank these people for their support and cooperation.



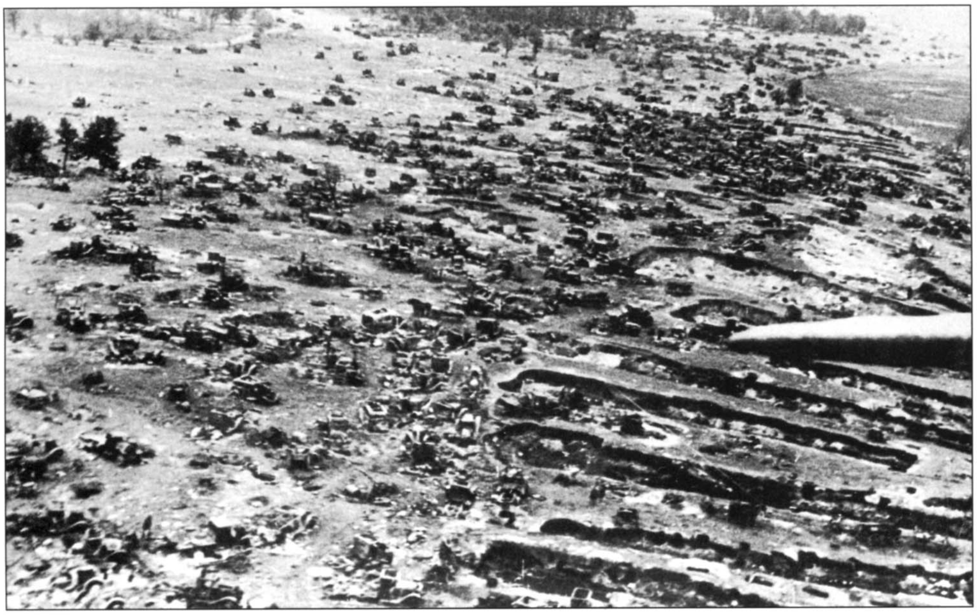
A Pz.Kpfw. IV Ausf. D in the so-called "U-bootpanzer" (Tauchpanzer) configuration, which permitted the tank to submerge in water up to 15 meters (16.5 yards) deep. These Tauchpanzer IVs were originally developed for the preparation of Operation "Sea Lion", the invasion of England, but were eventually used to cross the River Bug in June 1941 during Operation "Barbarossa". Note the frame around the turret front; this is the mounting frame for the waterproof fabric cover. The Tauchpanzers were mainly used by 18.Panzer-Division of Guderian's Panzergruppe 2.



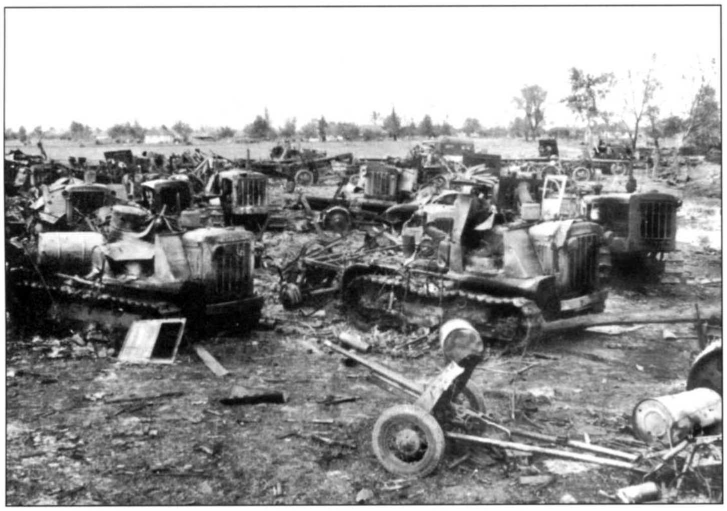
The vehicles that could not travel through water were transported across rivers by the use of pontoons. Here we see an example of such a river crossing. Four large rubber rafts have been used to form a pontoon to ferry a Sd.Kfz. 10 that is overloaded with supplies. This was probably the simplest way employed by the Panzerwaffe to execute a river crossing.



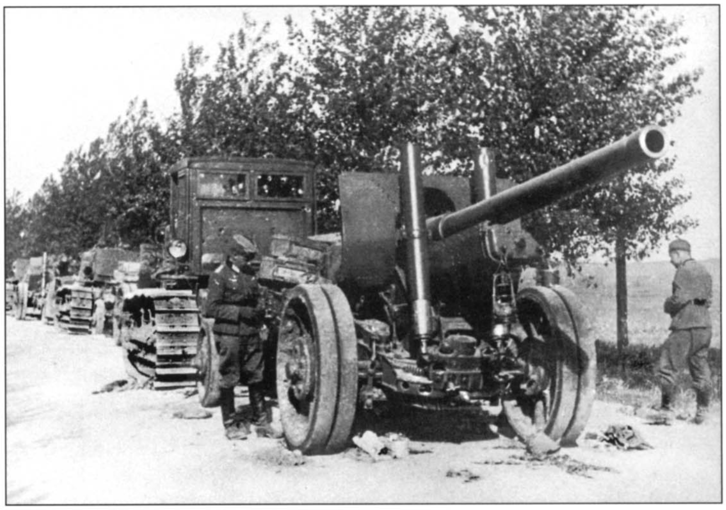
When the Germans reached the first Soviet areas of troop concentrations, they saw astounding sights — hundreds of vehicles destroyed by Luftwaffe air strikes or abandoned by retreating Soviets. Here is a group of no less than ten T-37 amphibious tanks abandoned by a Soviet reconnaissance troop during a wild escape after being taken by surprise. None of them has even a trace of battle damage. Note the unit markings painted on the turret sides.



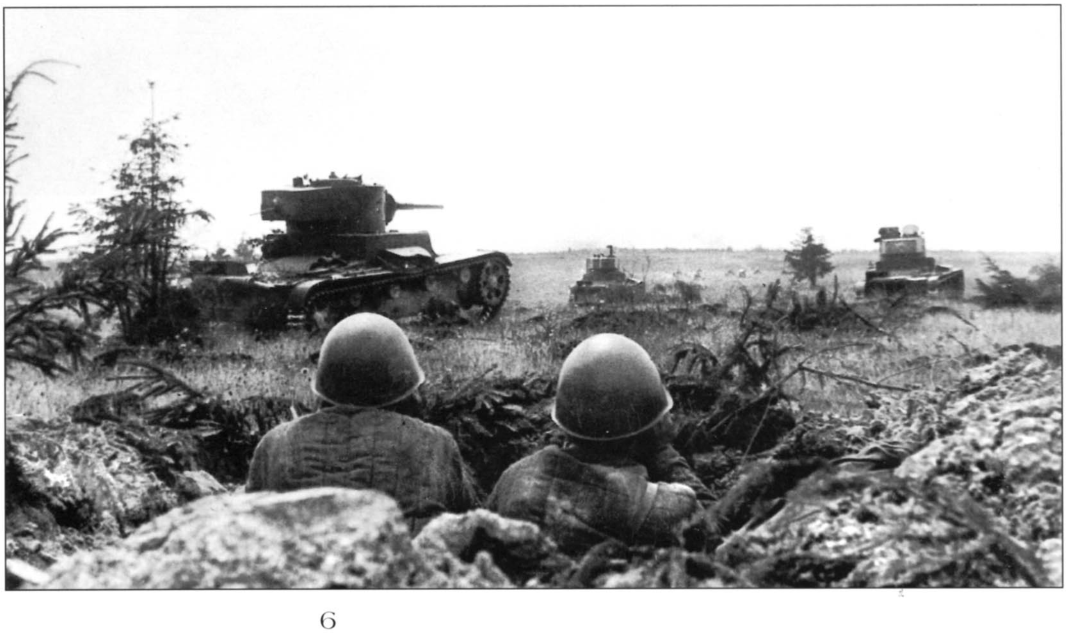
This was a typical sight in the Soviet western frontiers in the early phase of Operation "Barbarossa" — hundreds of destroyed and abandoned Soviet vehicles littering the field. This is what remained of a Soviet support and artillery unit after a Luftwaffe air strike.



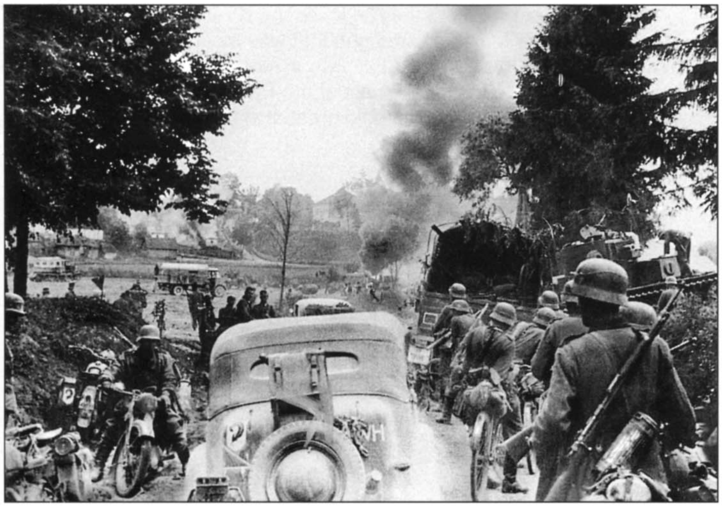
The field concentration of vehicles belonging to an anti-tank unit was photographed following an air strike. All visible tractors are the ChTZ-65 "Stalinet" artillery tractor, which was designed on the base of the agricultural tractors, like American "International TD", for example. Factories could produce them for both military and civil duty without any troubles, but this civilian machine was not popular with the military crews. The guns are the two main types at that time: the 45mm model 1937 (designed on the base of the German 3.7cm PAK 36/37 gun) and the 107mm model 1910/30 and model 1940.



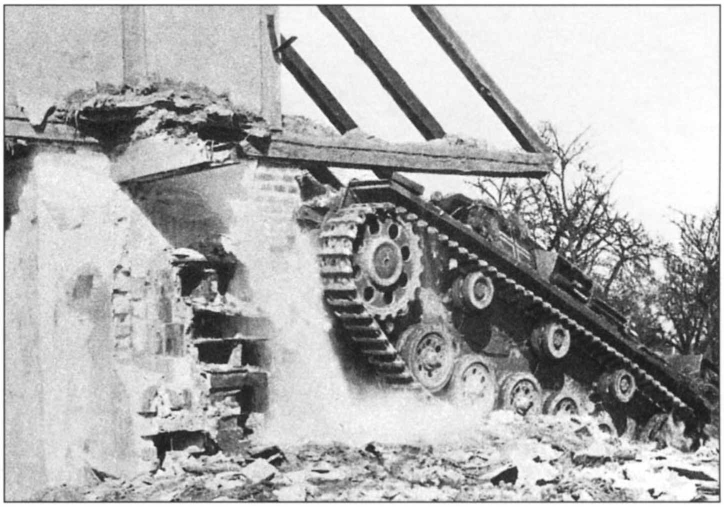
Hundreds more vehicles and guns were captured by the Germans during their advance when they found an entire military column abandoned due to either a lack of fuel or desertion by the Soviet soldiers. The S-65 tractors seen in the background are the modified version with a cab. The artillery pieces are heavy 122mm A-19 model 1931/37 guns.



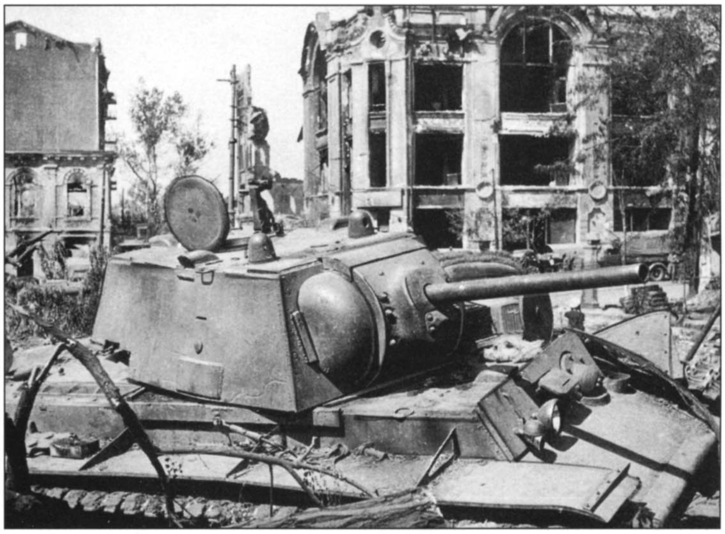
From the very early days of the war on the Eastern Front the Red Army was notorious for its unsuccessful counterattacks that resulted in high losses. There are known cases where entire tank units were decimated by the Luftwaffe and anti-tank guns within 2-5 days of the beginning of the attack. In this photo we see T-26 tanks advancing through the Soviet lines toward the Germans.



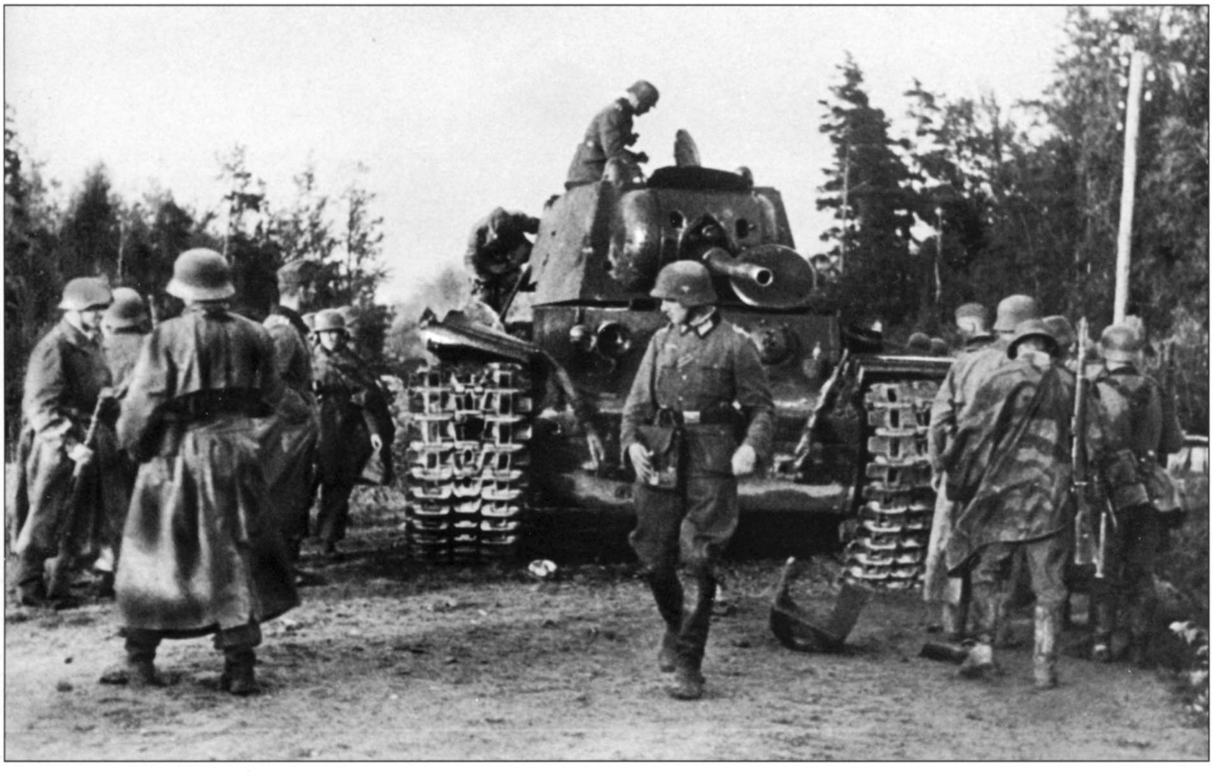
In June 1941, on the southern flank of the German advance into Russia, Germany's 6. and 17.Armee suffered probably the most serious troubles of all the armies involved in Operation "Barbarossa" when the Soviets launched a counterattack with all their armored corps equipped with over 3,000 tanks. This photo shows a typical sight on road at that time. Soldiers in columns indifferently await marching orders while combat takes place only a few hundred meters ahead. The vehicles carry the emblem of 97.Jäger-Division, which formed part of 17.Armee, attacked into Lvov direction, and repulsed many attacks by the Soviet 4th Mechanized Corps. Note the knocked-out T-28 at the right and an abandoned fully tracked tractor in the background at the left.



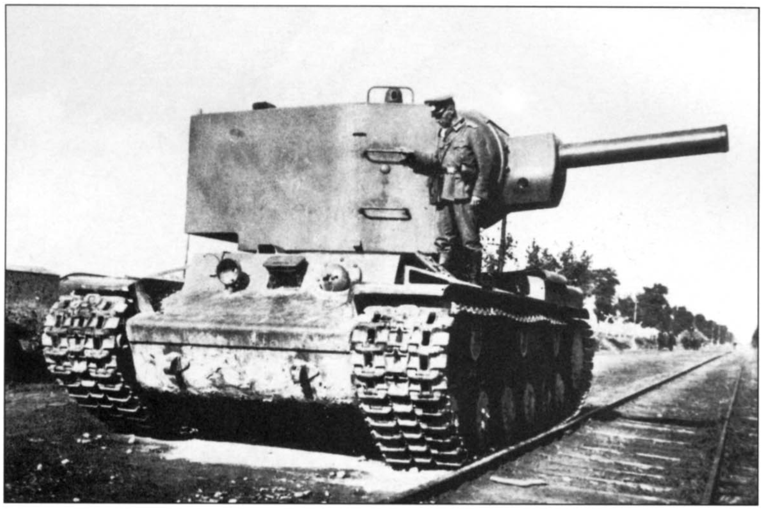
A StuG III at work. This type of vehicle proved to be the most successful German AFV during the first Russian campaign. It was fast, mobile, and quite well armed and armored. Both sides were impressed by its capabilities and began larger production of it (Germany) or started developing its own similar vehicle (Soviet Union).



A knocked-out KV-1 on the street of an unknown Soviet city. Note the many details of the construction of this tank. In the first days of the war the Red Army units had 508 KV-1 tanks out of a total of 636 vehicles of the KV family that were produced. Just as in the previous decade, when the BT and the T-26 tanks had been armed with the same gun, the new Soviet tanks, the KV-1 and the T-34, were again armed in the same way, i.e., with a 76.2mm gun, but they were produced by two different manufacturers.

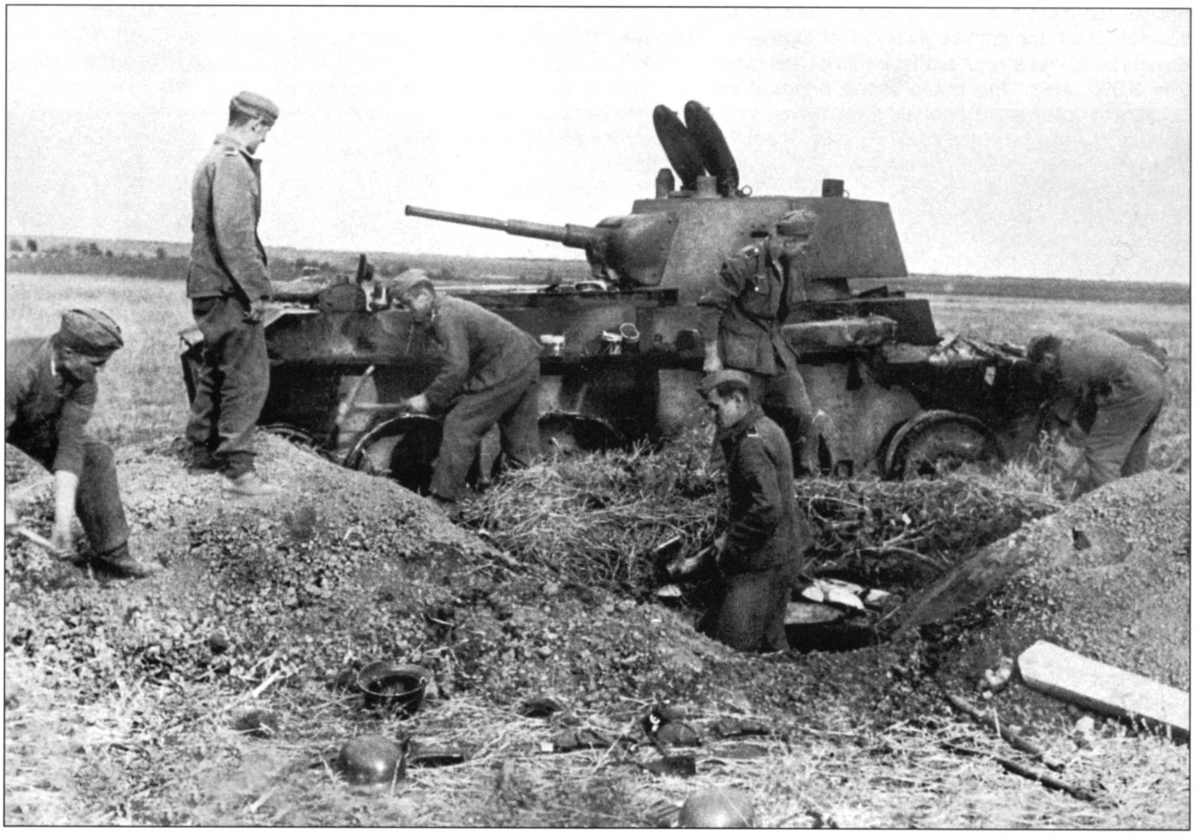


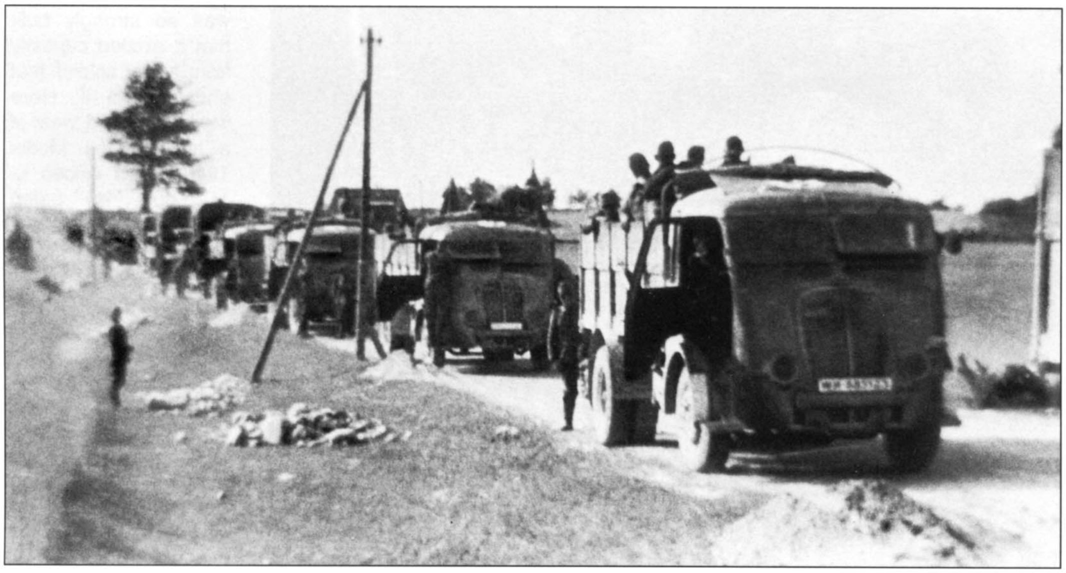
One of the greatest surprises to the German High Command was the KV-1 heavy tank, which was so strongly built that it excited curiosity from every soldier that encountered it. Here we see a good view of a typical KV-1 Model 1940 series whose L-11 gun is being carefully examined by soldiers and NCOs of Herresgruppe Nord after knocking it out of action on a forest road. KV tanks overwhelmed all Germans tanks, therefore they were usually eliminated not by tanks or anti-tank guns of the Panzertruppen, but by the Luftwaffe or 8.8cm Flak guns.



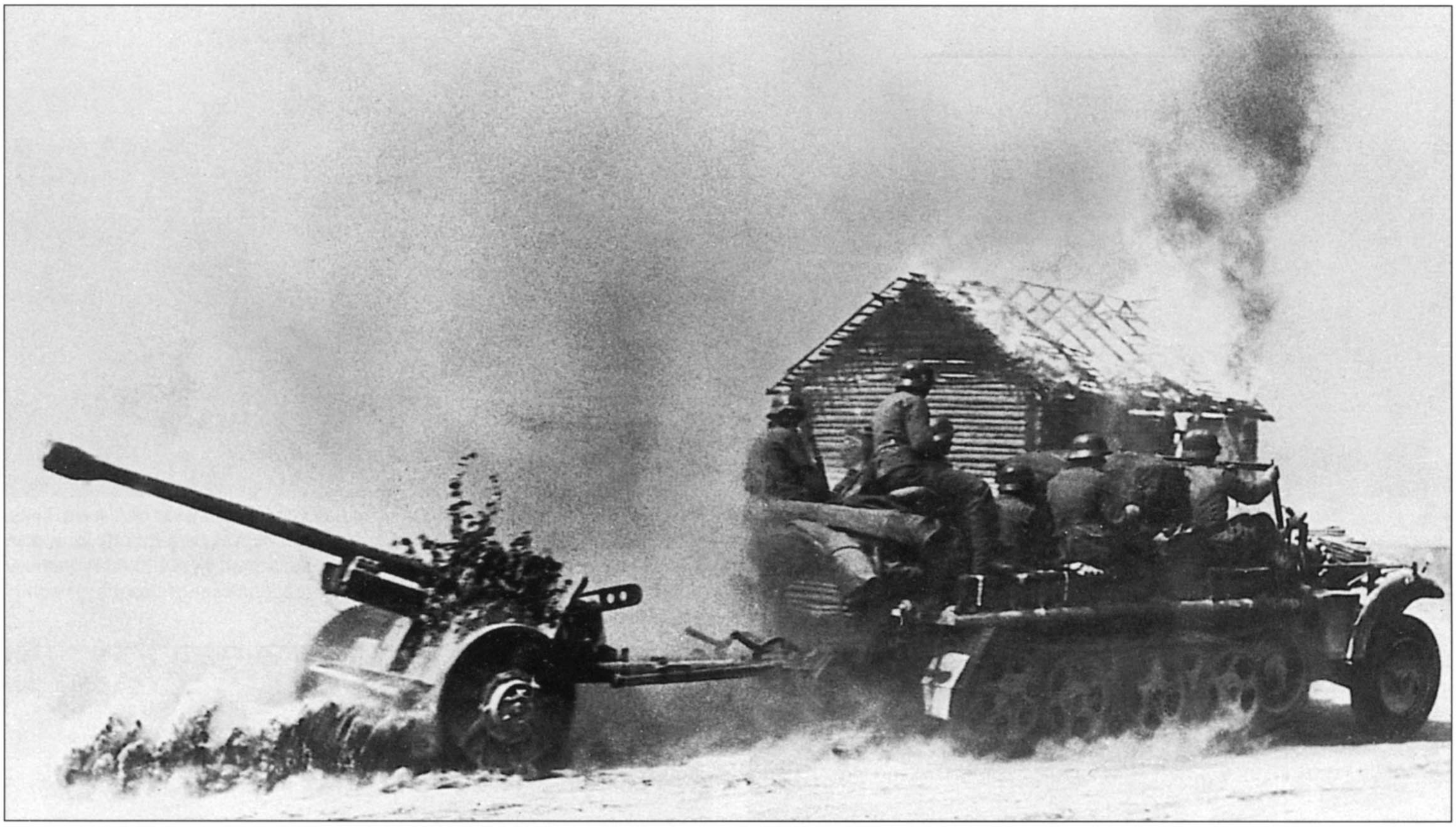
The heavier brother of the KV-1 was the KV-2 tank, which shocked the Germans due to its powerful gun that was mounted in the massive, heavily armored turret. In 1941 it was a real mastodon and a nearly invincible weapon. Almost all levels of the Panzerwaffe staff were very impressed by this weapon and paid great attention to it.

German infantrymen dig in near a burned-out BT-7 tank, which gives them welcome protection against enemy fire. At first glance the BT-7 bears some resemblance to the T-34, which was a much more impressive tank.

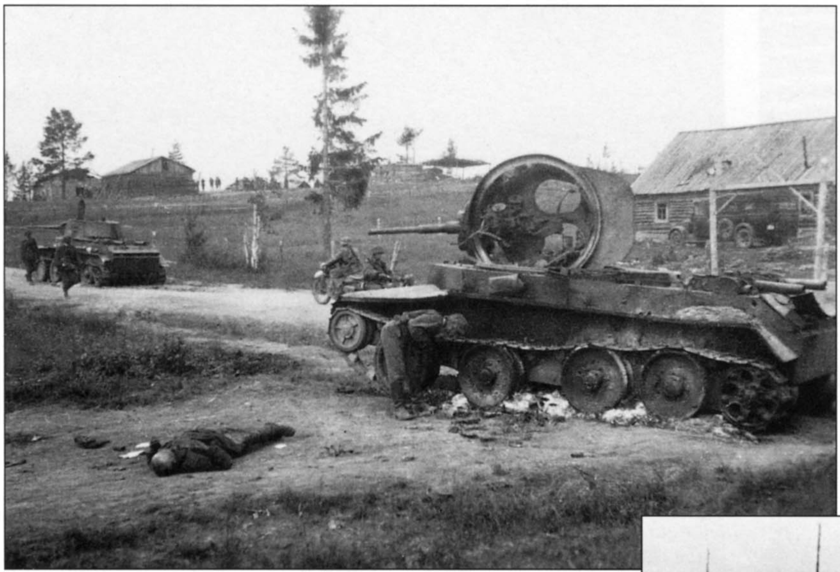




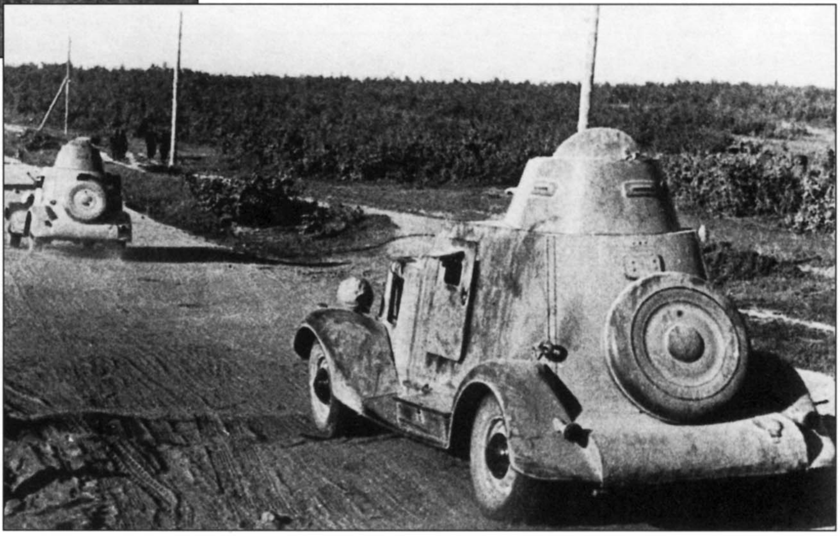
This column of French Renault trucks was photographed during a break on a road in Russia in the early stages of Operation "Barbarossa". These trucks were incorporated into many transport units in 1940, including Panzer division sub-units, due to a lack of original German trucks, which were produced in limited numbers. This type of vehicle was quite popular in the Panzerwaffe in 1941 and was employed in large numbers in four divisions when "Barbarossa" was launched. The trucks seen here are from a motorized infantry regiment modified for infantry transport duties. They are marked with white road markings on the mudguards and have large Nazi flags attached to the roof of the cabs. The trucks were painted with dark gray and covered with heavy coat of dust.



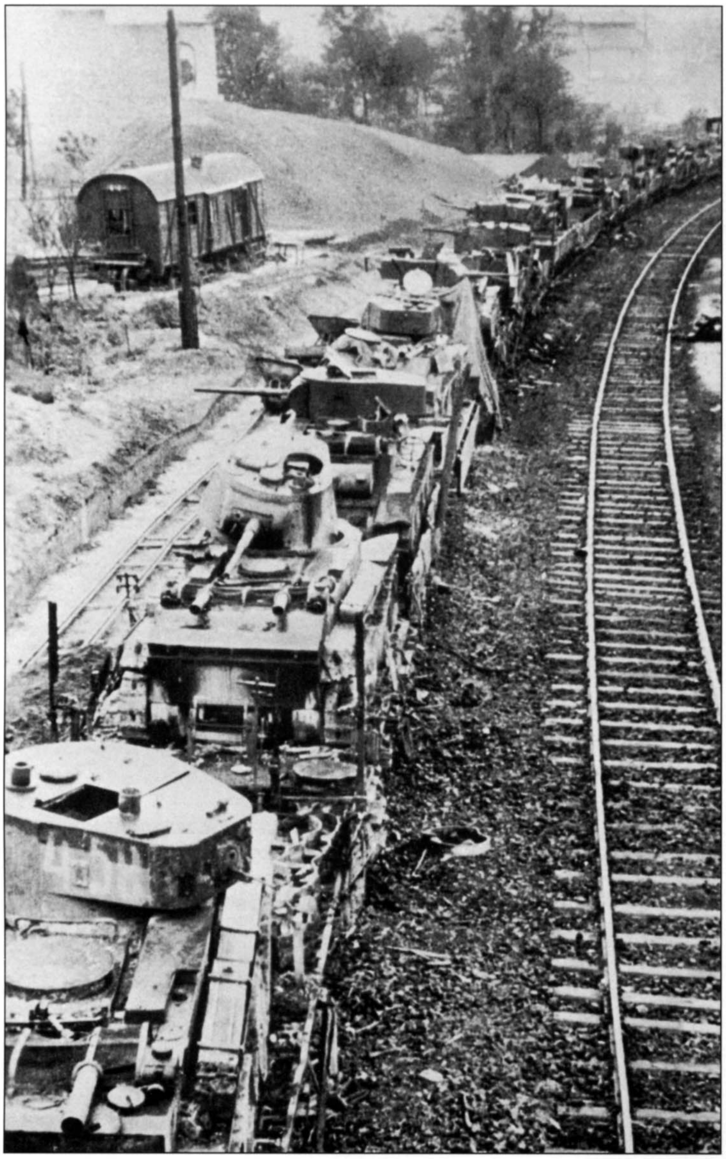
A Sd.Kfz. 10 with a 5cm PAK 38 anti-tank gun in tow passes through a Ukrainian village amidst a cloud of dust and smoke. The PAK 38 was a very useful weapon against Soviet armor, especially when firing the Pz.Gr.40 shells, but it did not guarantee superiority to its crews, so it was not appreciated by the Germans. On the other hand, the Sd.Kfz. 10 was one of the most popular vehicles of this period and was very commonly used in all motorized divisions.



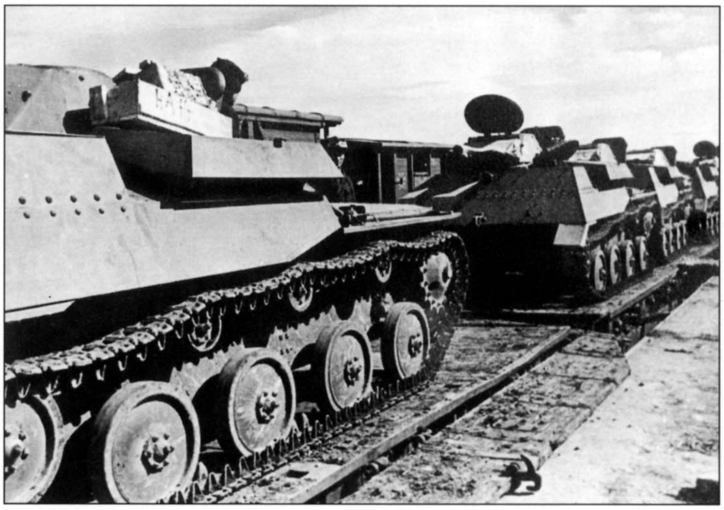
The 3.7cm PAK 36/37 gun was not completely useless. This photo shows that it was useful during the summer of 1941, especially when the Soviets employed only light armored tanks in their assault units. These two BT-7 tanks were destroyed by a Waffen SS Panzerartillerieabteilung (Pz.Art.Abt.) equipped with 3.7cm guns. Note the interior details of the blown-off BT-7 turret.



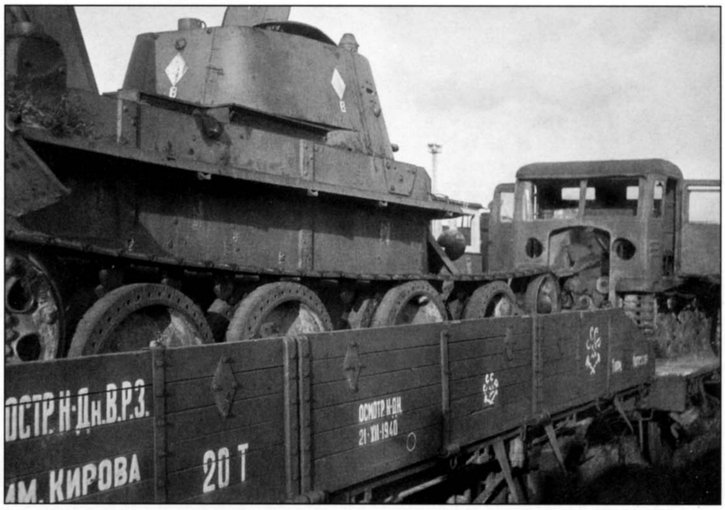
Soviet armored units were very well equipped with armored cars, which still played a major role in armored units. In this photo we can see the most popular light armored car used by the Red Army, the four-wheeled BA-20. Note the colors of these vehicles — all BA-20s are covered by a solid coat of dust, so the original camouflage color is not visible at all.



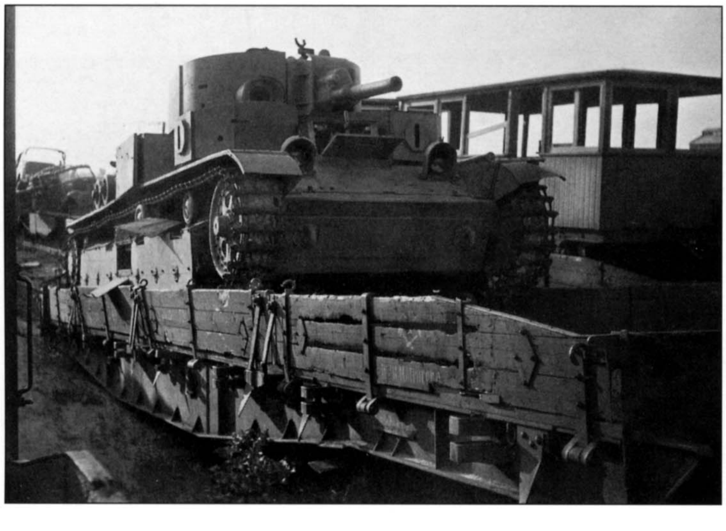
Many of the Soviet rail transports did not reach their destinations. Some of them were destroyed by Luftwaffe air strikes, while others were intercepted by German armored troops along the way or at stopovers. Here is an example of such a rail transport of T-26 tanks that was intercepted and destroyed by Panzerwaffe crews on the way to the front. Note the nearest T-26 — it has a three-digit number on the side of the turret (white "458") that is of unknown origin.



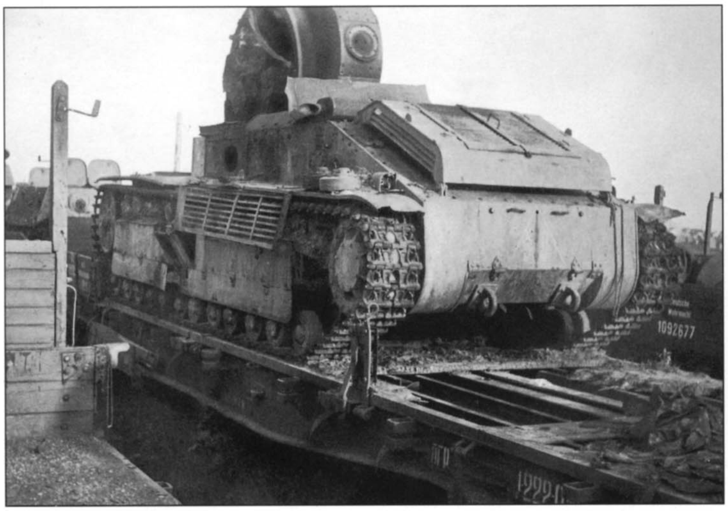
From the beginning of the war the Soviets sent to the front lines hundreds of trains carrying vehicles for the fighting troops. This scene shows the transport of T-40 amphibious tanks armed with 12.7mm machine guns. These vehicles were used by the reconnaissance troops of some divisions in place of the T-37/38 tanks.



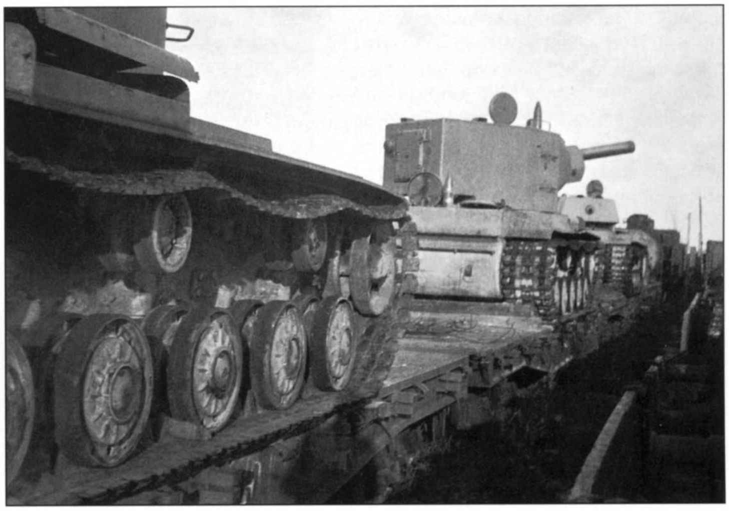
Many of the railway transports were captured by the Germans thanks to the Soviets themselves, who retreated so fast that the railway services sometimes had no time to inform approaching transports about the lost station. But sometimes transports were lost due to other means like the drunkenness of Soviet railway workers. Such a situation occurred on 18 July at Velikiye Luki when a drunken railwayman rammed another train with armored vehicles and petrol tanks, which had to be abandoned to the Germans due to a lack of time. The railwayman was found guilty and executed, but because the NKVD or Red Army court-martial worked quickly in those days it is not known if he was sober during the trial and execution. This photo shows the same transport captured along with others by the Germans at a large railway station. A BT-7 tank and the fully tracked STZ-5 tractor are visible. Note the unit markings painted on the BT-7 turret.



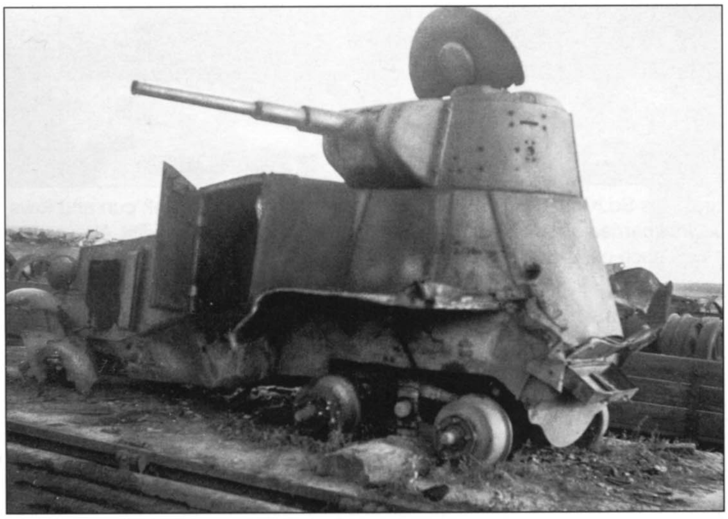
Many of the railway transports that were not destroyed fell into German hands. This photo shows a T-28 medium tank that was left behind to the enemy after its transport platform was derailed. Note what excellent condition the tank is in.



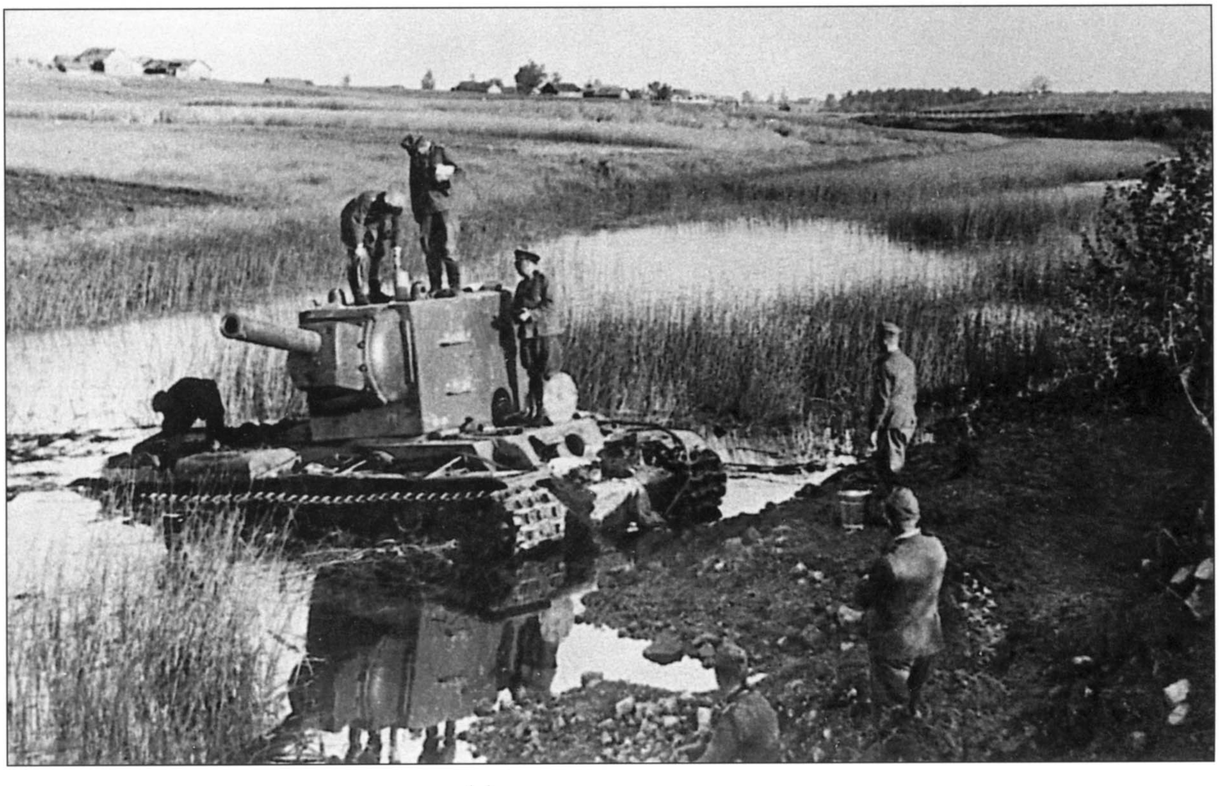
This photo shows another T-28 tank from a different transport, but this one was probably destroyed by its crew. Note the partially visible unit marking on the rear of the hull.



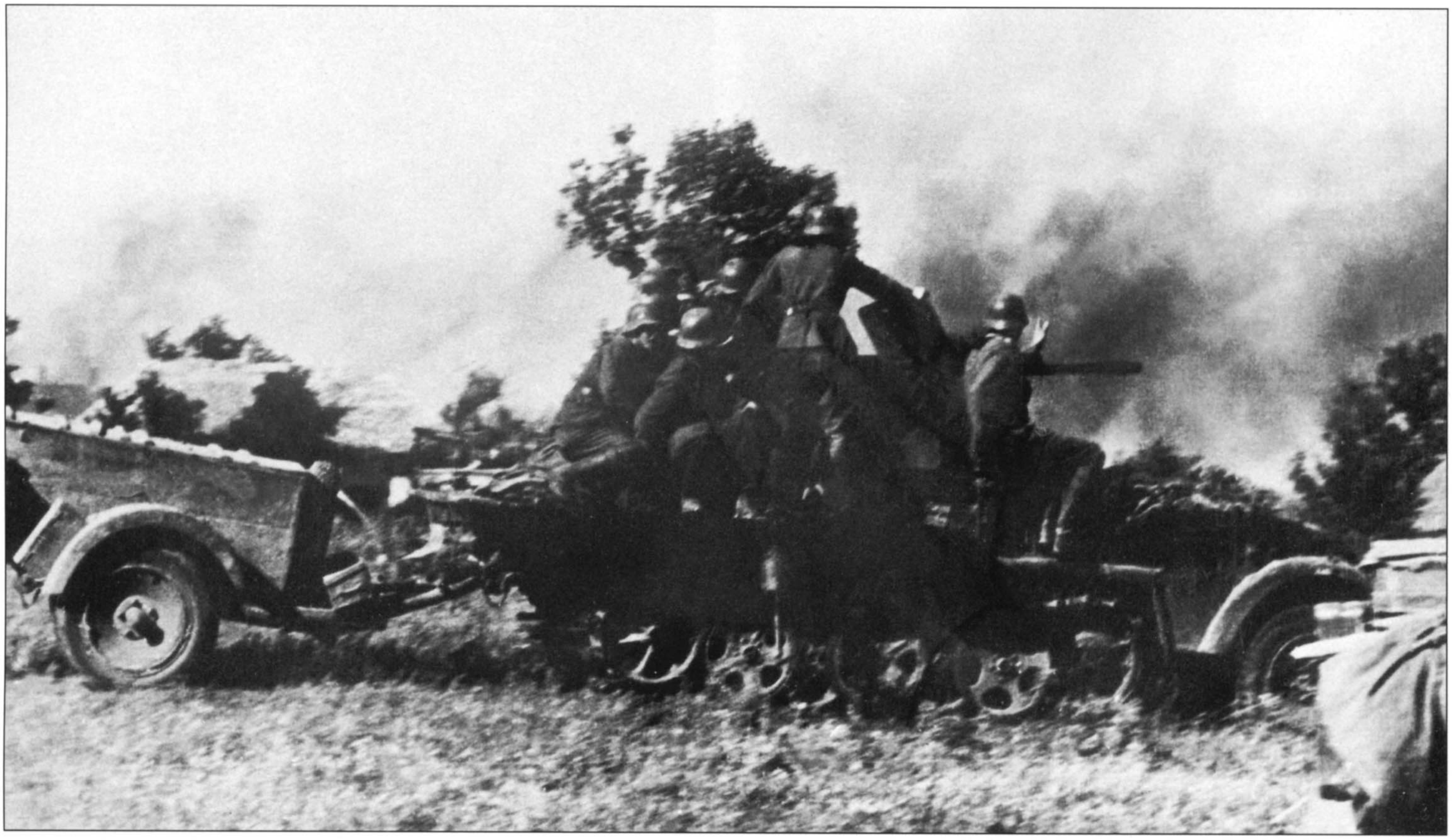
The two giants of the Red Army, the KV-2 heavy tank and the KV-1 tank (in the background), are visible in this photo. The KV-2 came as a surprise to the Germans in the early days of the war. It was invulnerable to any tank or anti-tank gun at that time and could only be stopped by heavy artillery or 8.8cm anti-aircraft guns. However, the KV-2s were prone to mechanical breakdowns.



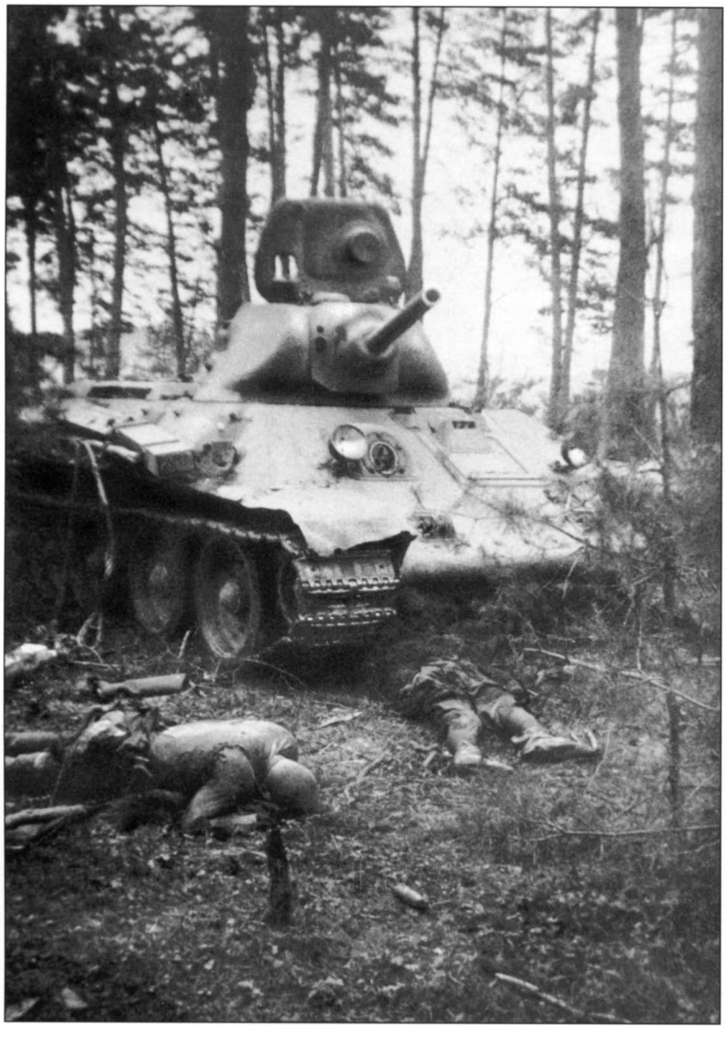
This BA-10 armored car of the Red Army looks like it took a direct hit and was demolished as it sat on a railway car. The BA-10 heavy armored car was considered the best armed armored car in the world at the time of the fighting on the Eastern Front.

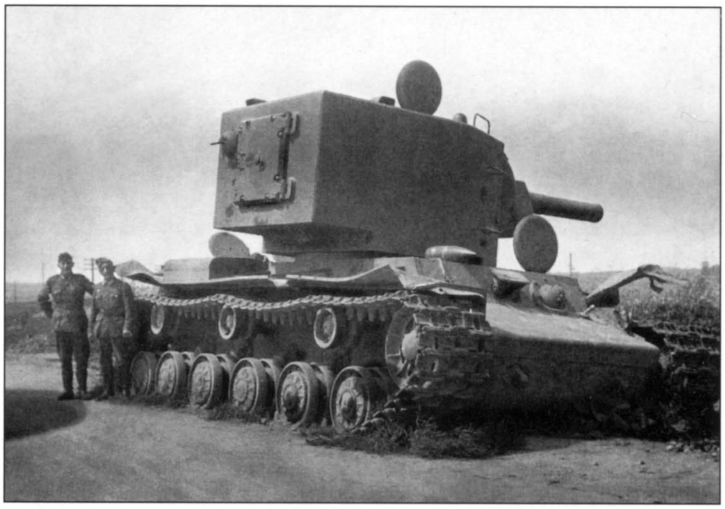


The biggest problem for the heavy tanks of the Red Army was that the bridges all over the Soviet Union were usually too weak for tanks of the KV family. Many Soviet commanders tried to ford rivers by moving along the river bottoms, but it was often impossible because the ground was too soft, the river was too deep, there was a lack of tractors, or a lack of knowledge among the tankers. As a result, almost all of the 243 KV-2s produced were lost during the first two months of the war.



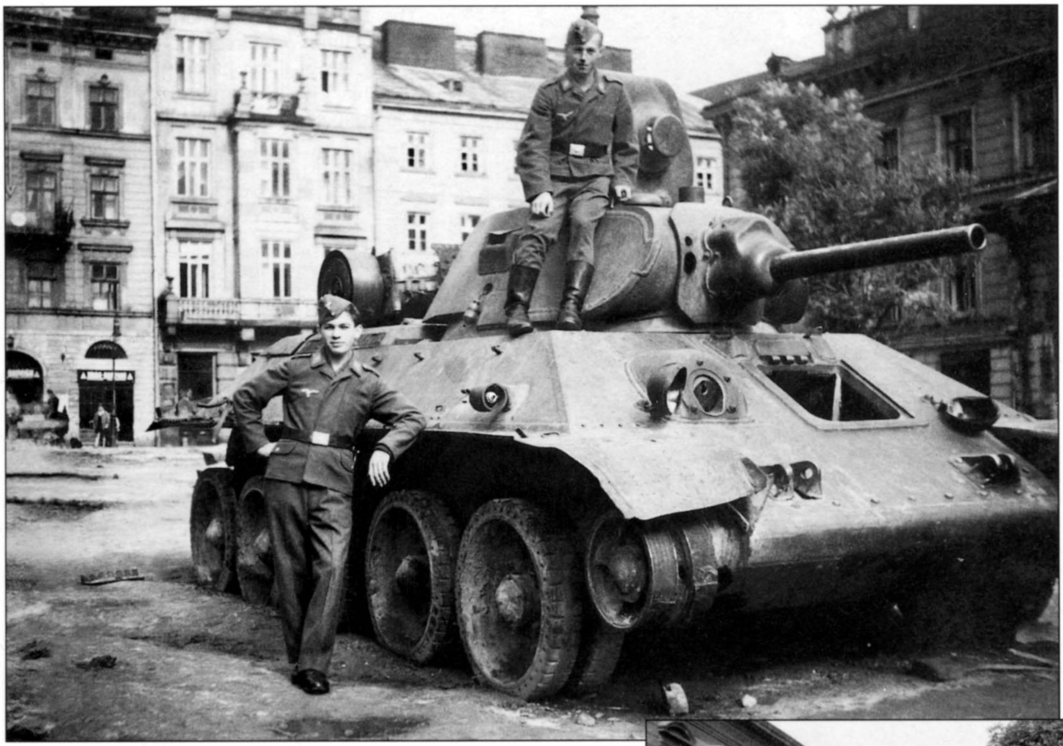
A Panzerabwehrabteilung (anti-tank gun battalion) vehicle in action in a village. This Sd.Kfz. 10 is fitted with a 3.7cm PAK 35/36 anti-tank gun and tows a trailer with additional ammunition. Usually the complete gun with its field carriage was carried, thus offering the Panzerjäger units great mobility. About 35% of all independent anti-tank units used in Operation "Barbarossa" were equipped with such composite vehicles.



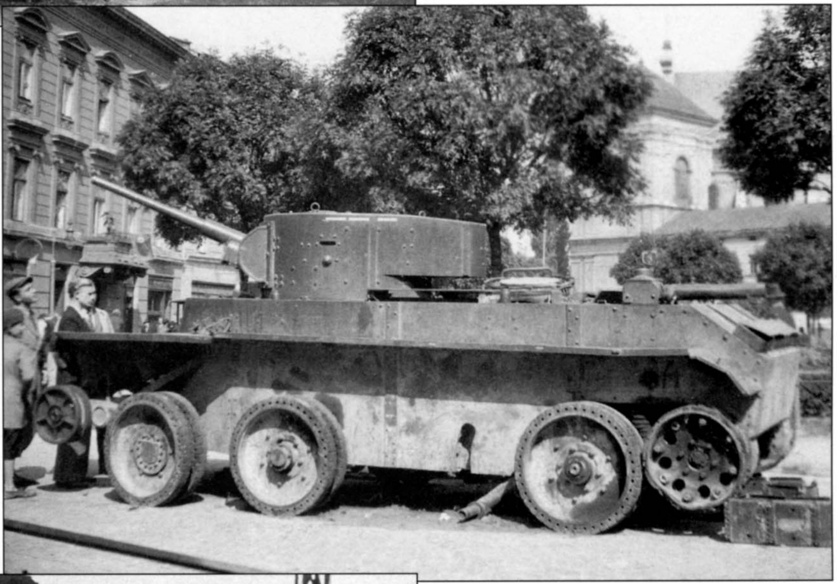


Another KV-2 tank. This one was abandoned after being damaged in combat. The heavy tanks, especially the KV-2s, were an unpleasant surprise for the Germans. For many weeks staff officers did not believe the reports received from front-line units that they had encountered tanks armed with 152mm guns, armored with 75-100mm plates and weighing about 50 tons. The heaviest German tank at the time was armed with 7.5cm gun and weighed about 20 tons.

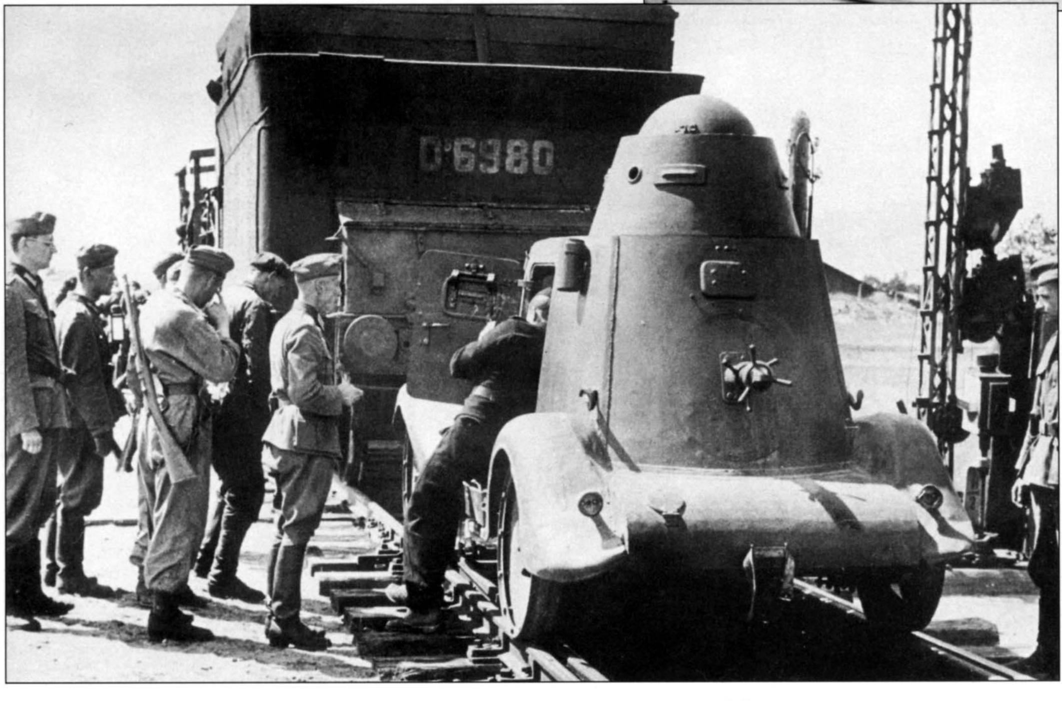
The crew of this knocked-out T-34 Model 1940 fitted with the short L-11 76.2mm gun had no luck. This photo shows all the details typical of the first series of the T-34. The Soviets had 1,225 T-34 tanks on 21 June 1941, but most of them were Model 1941 versions, which were armed with the improved F-34 76.2mm gun and had much better anti-tank capabilities than the Model 1940.



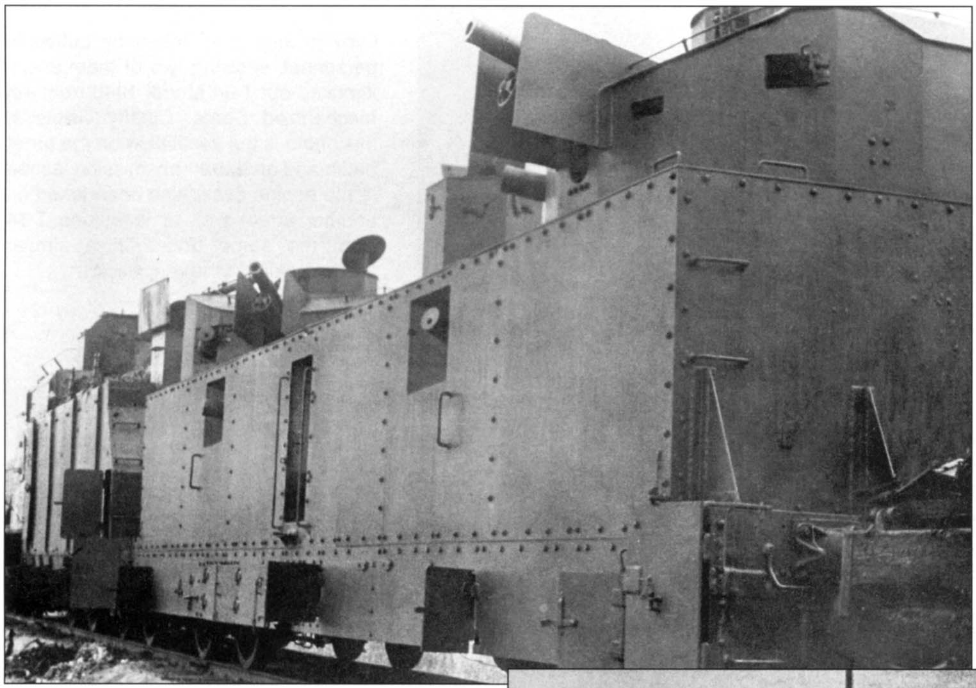
A souvenir photo from a “trip” to Lvov in July 1941 taken by Luftwaffe personnel, showing two of them and a knocked-out T-34 Model 1940 from 4th Mechanized Corps. Clearly visible in this photo is the ventilation on the turret hatch and an extra transmission lashed to the engine deck. Also abandoned on another street was at least one T-34 from the same unit with a similar transmission on the rear deck.



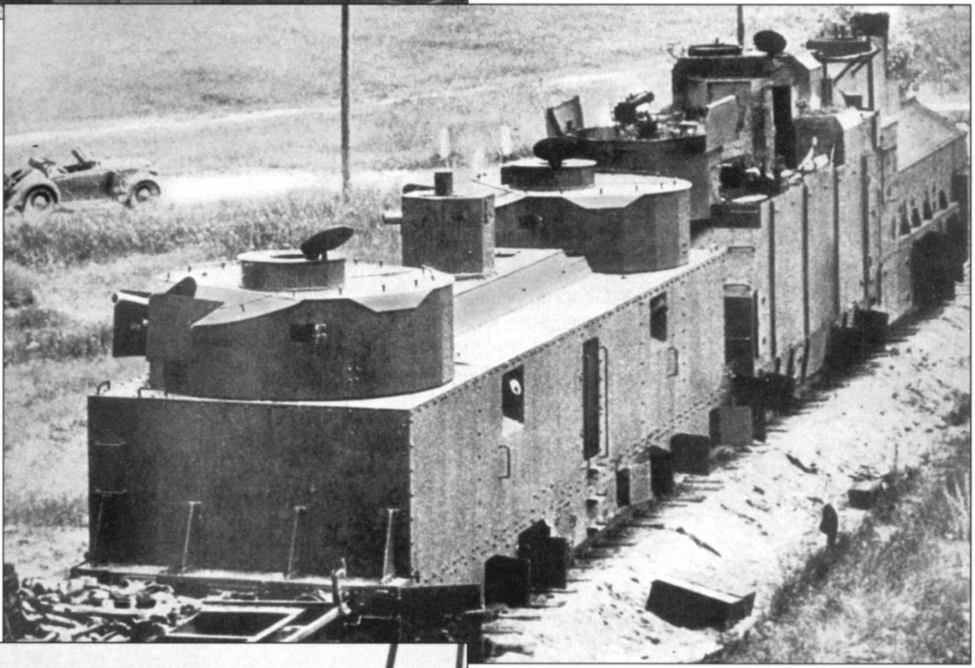
A damaged BT-7 tank sits abandoned on a street in Lvov. Note the three small horizontal white bars on the top part of the side of the turret — they are remainders of the full marking system used in the 1930s. The white dotted line indicates the 2nd company.



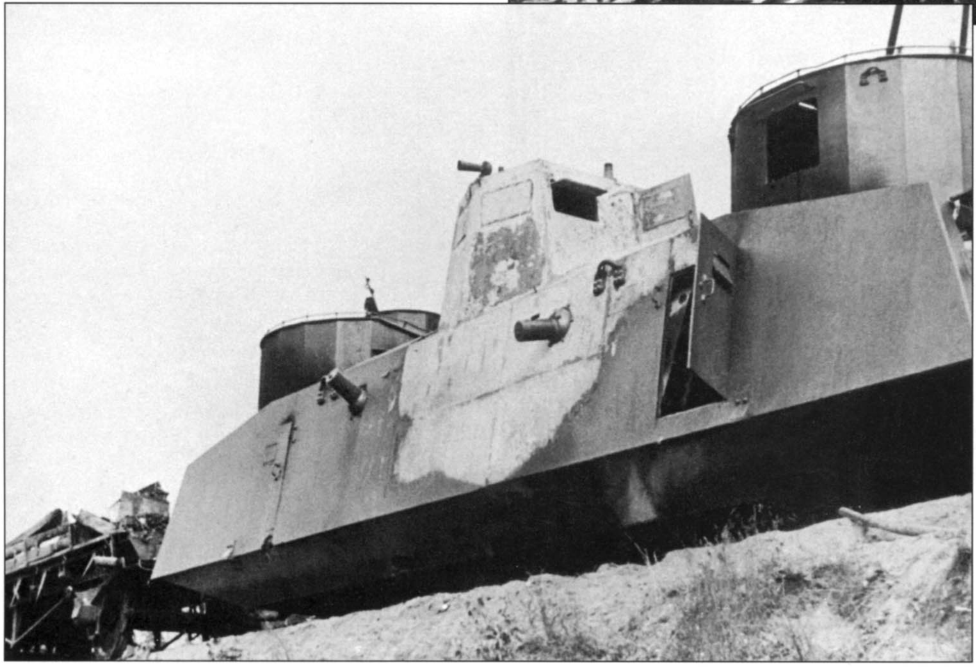
A few dozen BA-20 armored cars were modified to the BA-20 ZhD railway version and adopted for use by railway protection forces. Here we see one of the captured vehicles being inspected by the Germans, who named this type of vehicle the Pz.Sp.Wg. BA-20 2(r).



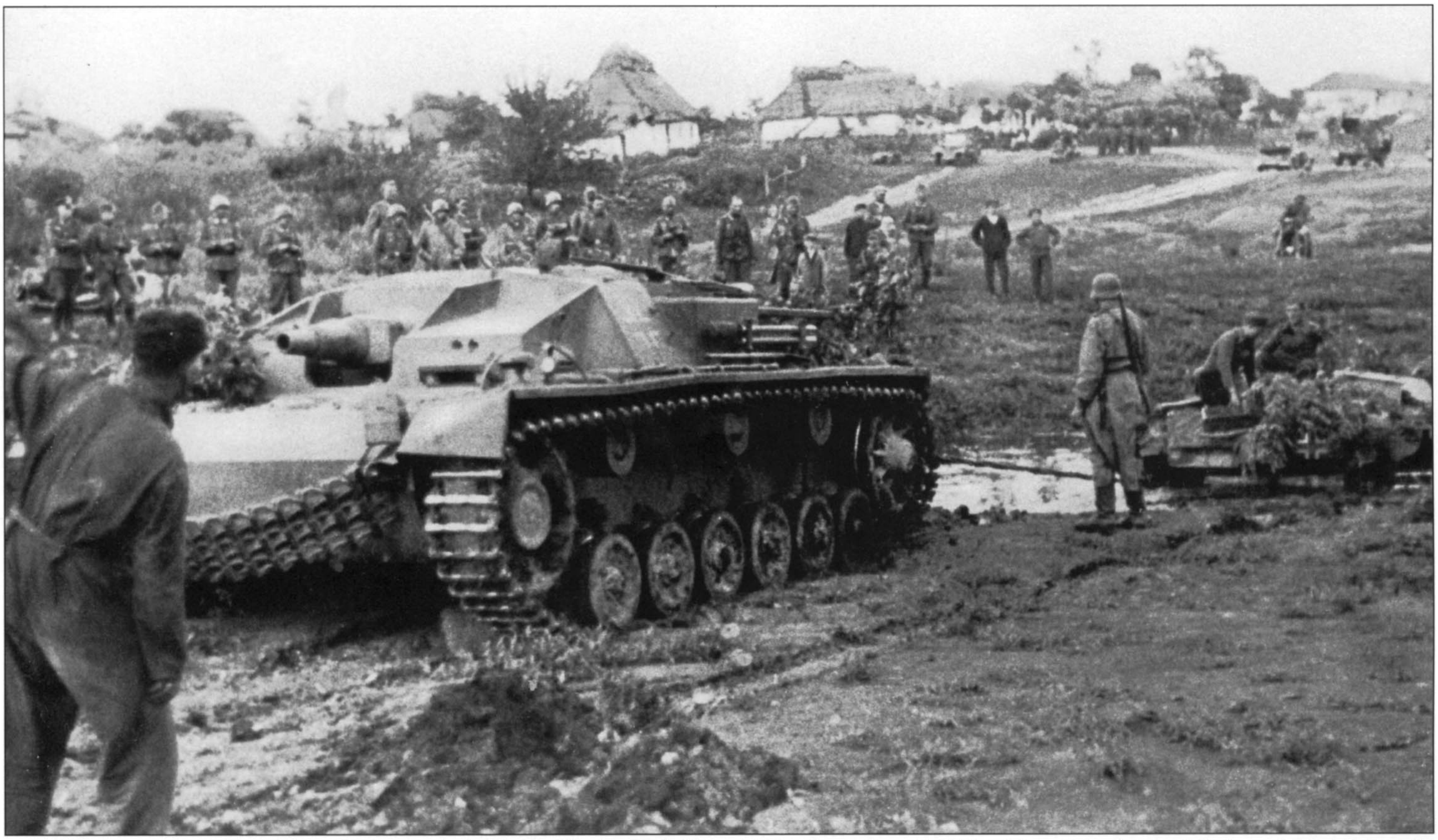
The Soviets fielded many armored trains. About 75 of them were in service at the beginning of the war, 25 of them being put to use by the NKVD. This BP-35 armored train was both damaged and captured by the Germans.



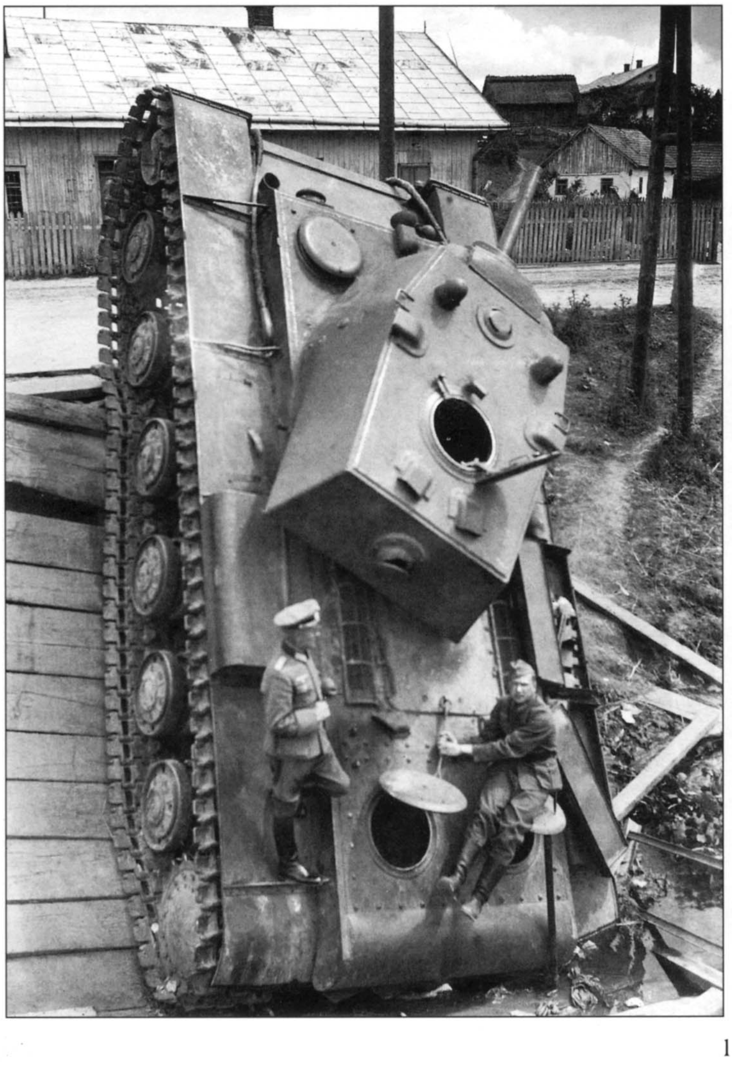
An overhead view of the same BP-35 armored train. Most armored trains were either destroyed by the Luftwaffe or captured intact with only minor damage, though the Soviet crews would write in their reports that they blew them up.

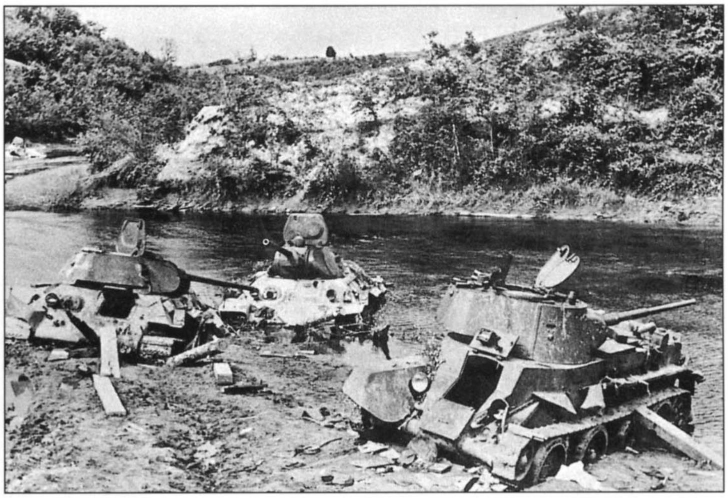


This battle-wagon of a Soviet armored train was burned out after receiving a direct hit, probably courtesy of the Luftwaffe. The light color on the central part of the armor is an indication of the intense heat of the fire.



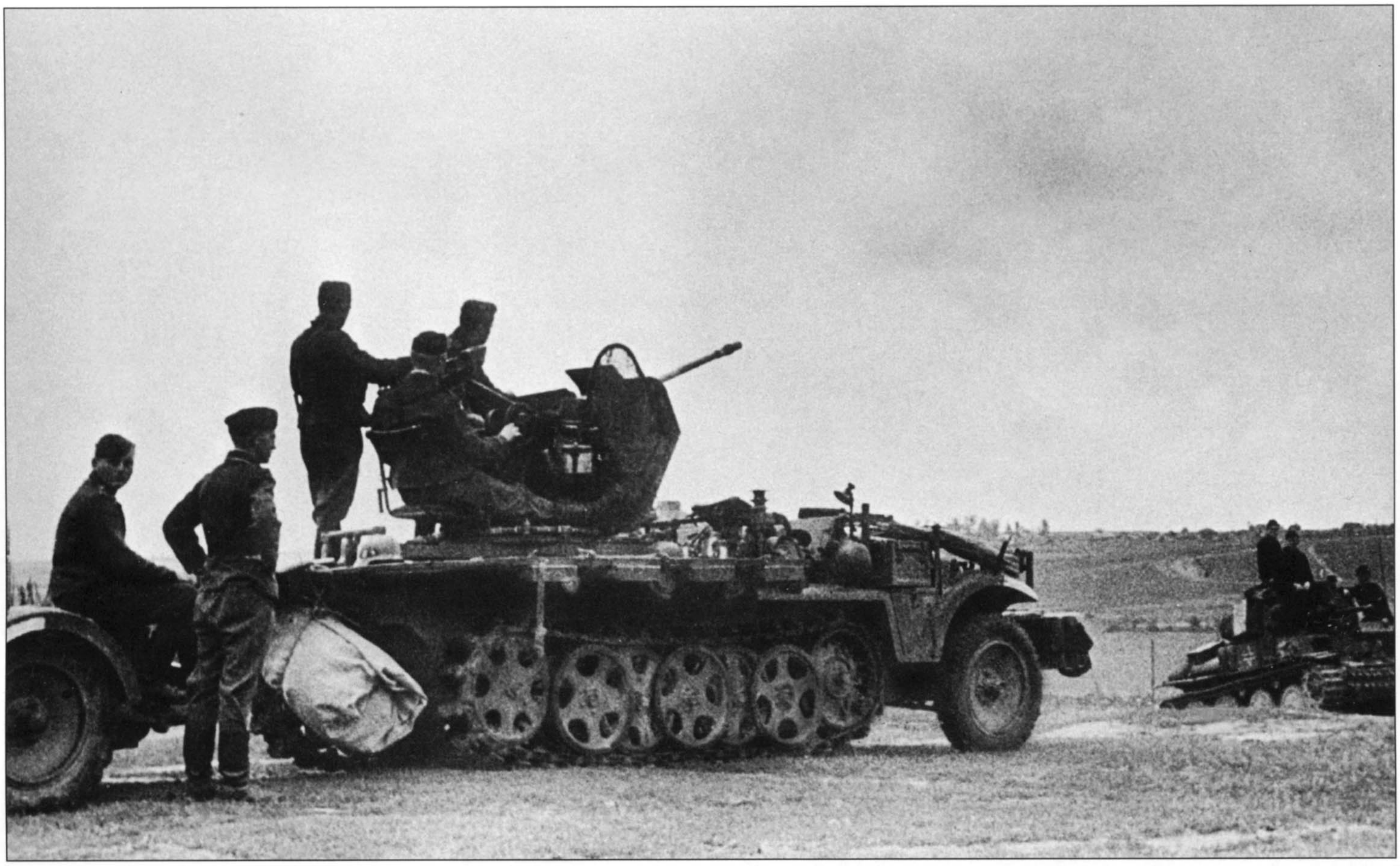
German tank crews sometimes had rotten luck. Here a friendly StuG III Ausf. D hauls another StuG III out from a muddy pool. This work would normally be done by a strong, half-track tractor. Since there were not too many of them available during the early weeks of fighting, they had to be replaced by combat vehicles.



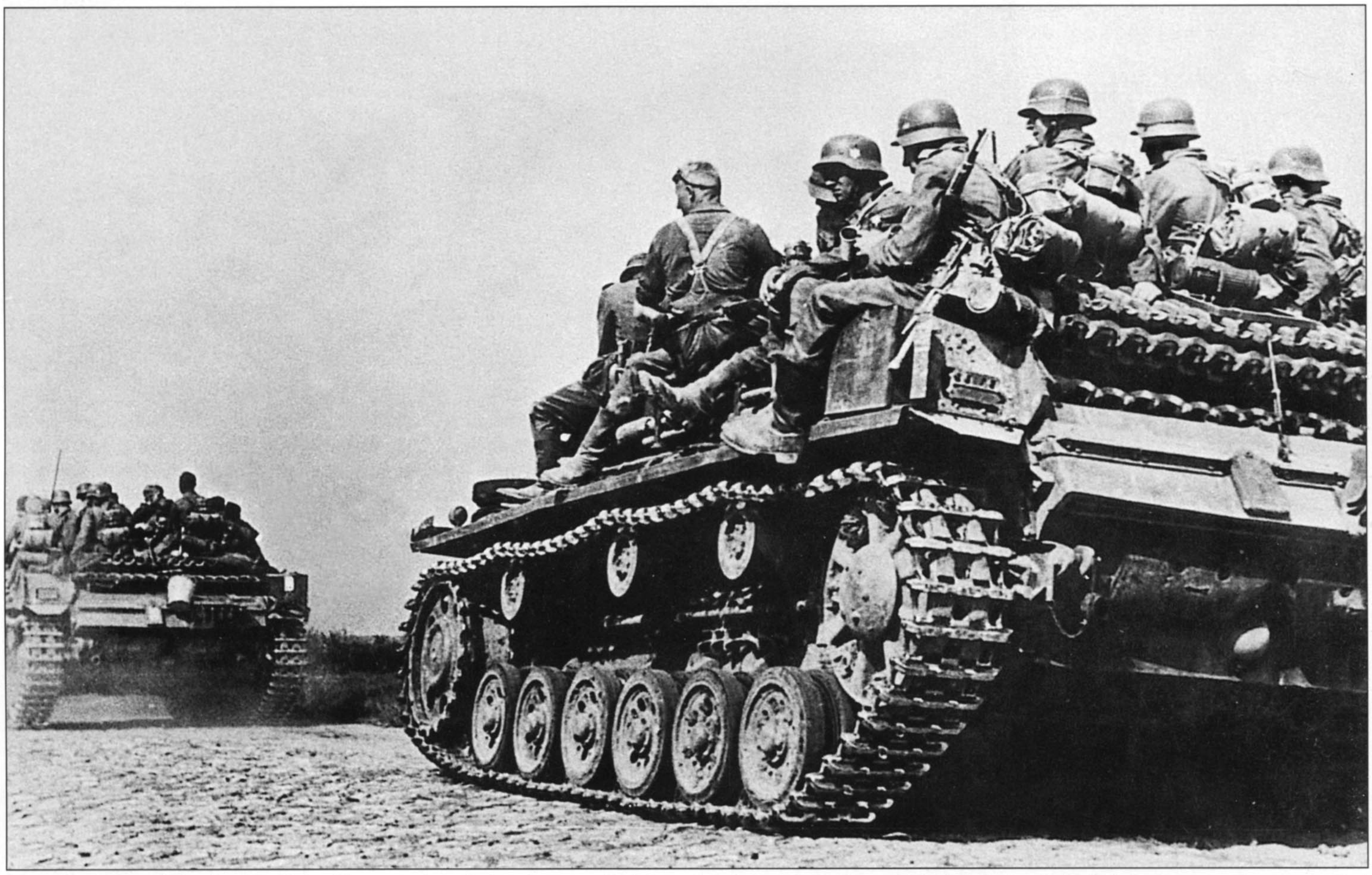


A similar situation, but this time the Soviet tank crews are in trouble. The vehicles crossed the river without much difficulty, but the muddy bank was too soft for them, especially the T-34 at the left. Both T-34 tanks are the 1941 model series, without ventilation on the turret hatch, but with thicker armor on the front of the turret.

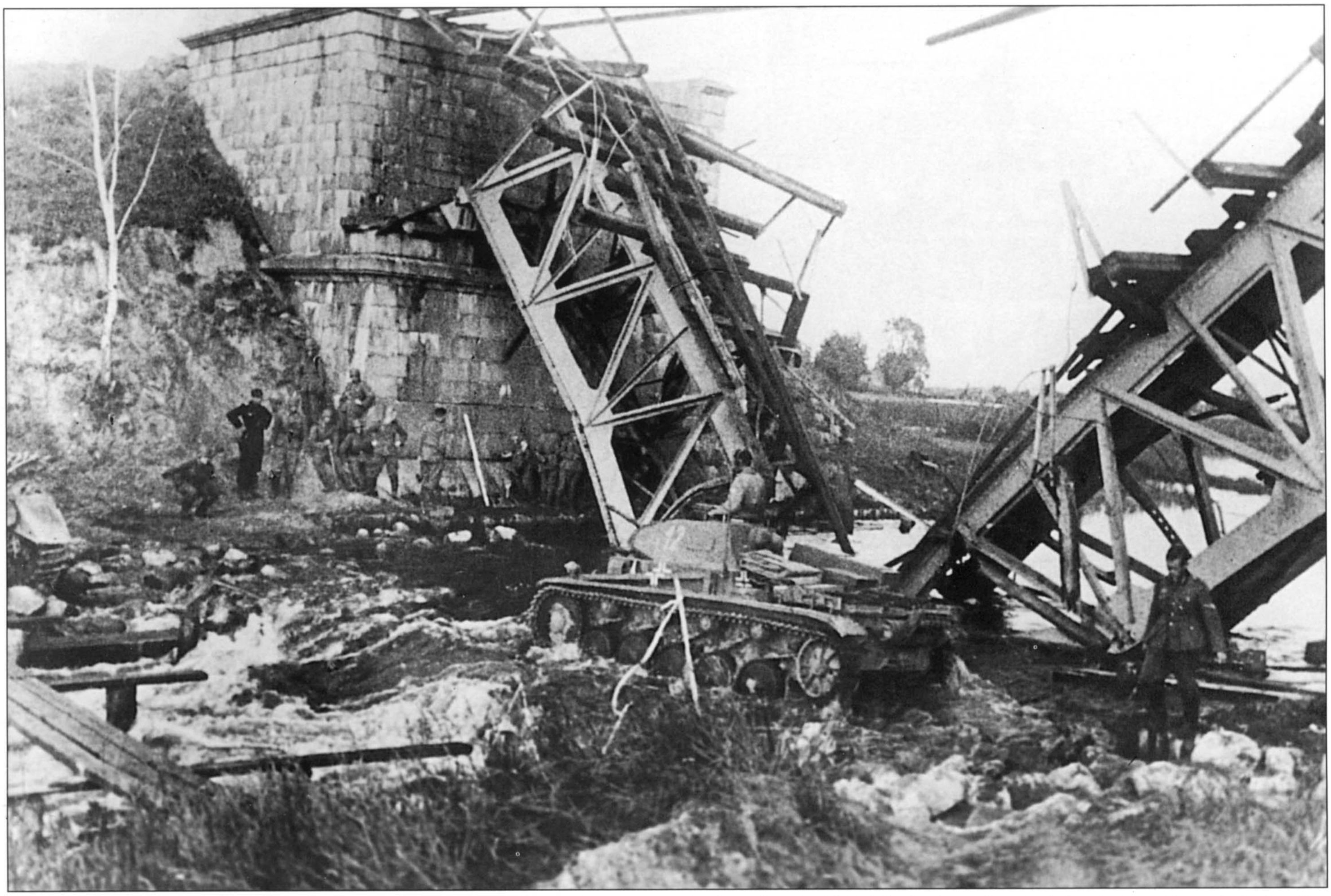
An excellent shot of a KV-1 tank abandoned on a damaged bridge. This photo shows to advantage all the details of the upper surfaces of the vehicle. The weak bridges and the lack of knowledge about the tanks among their crews were some main reasons for many losses incurred by KV units throughout the summer of 1941.



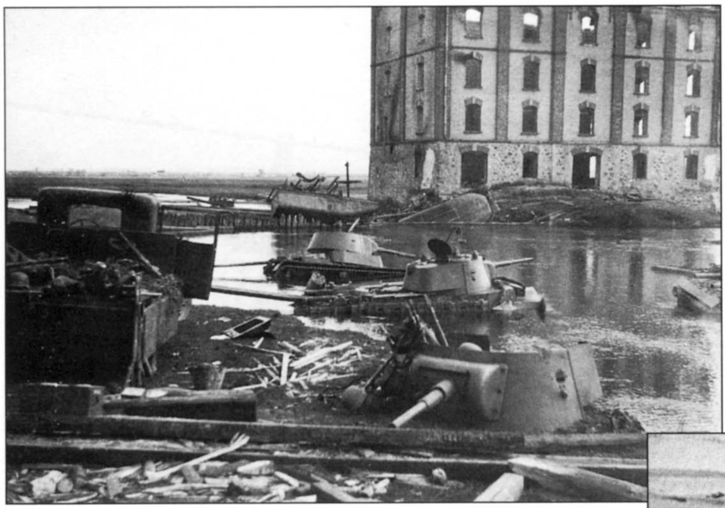
The crew of a Sd.Kfz. 10/4 is ready to provide cover fire on a road used by an advancing armored unit. The 2cm Flak gun was an effective anti-aircraft weapon. This vehicle has all its sides folded down to permit full traverse of the gun. Note the missing mudguard on the half-track.



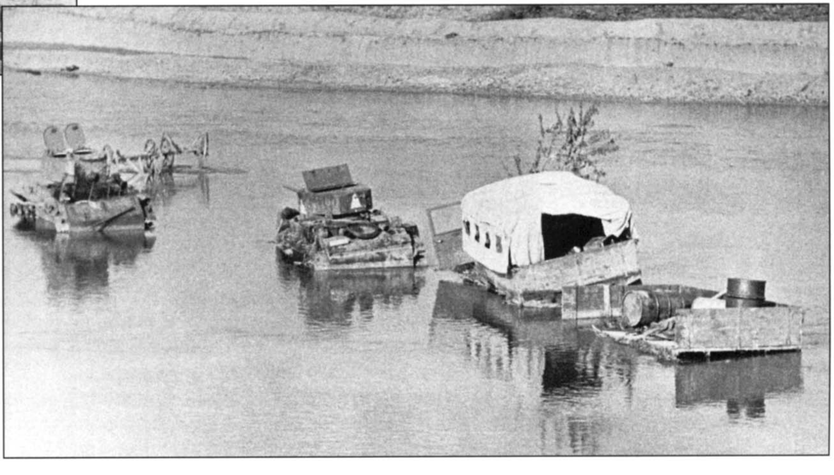
This photo of a pair of Pz.Kpfw. IIIs was taken during the pursuit of the retreating enemy. They are both fully loaded with infantrymen, who are carried for support in the upcoming battle and as protection against enemy infantry action.



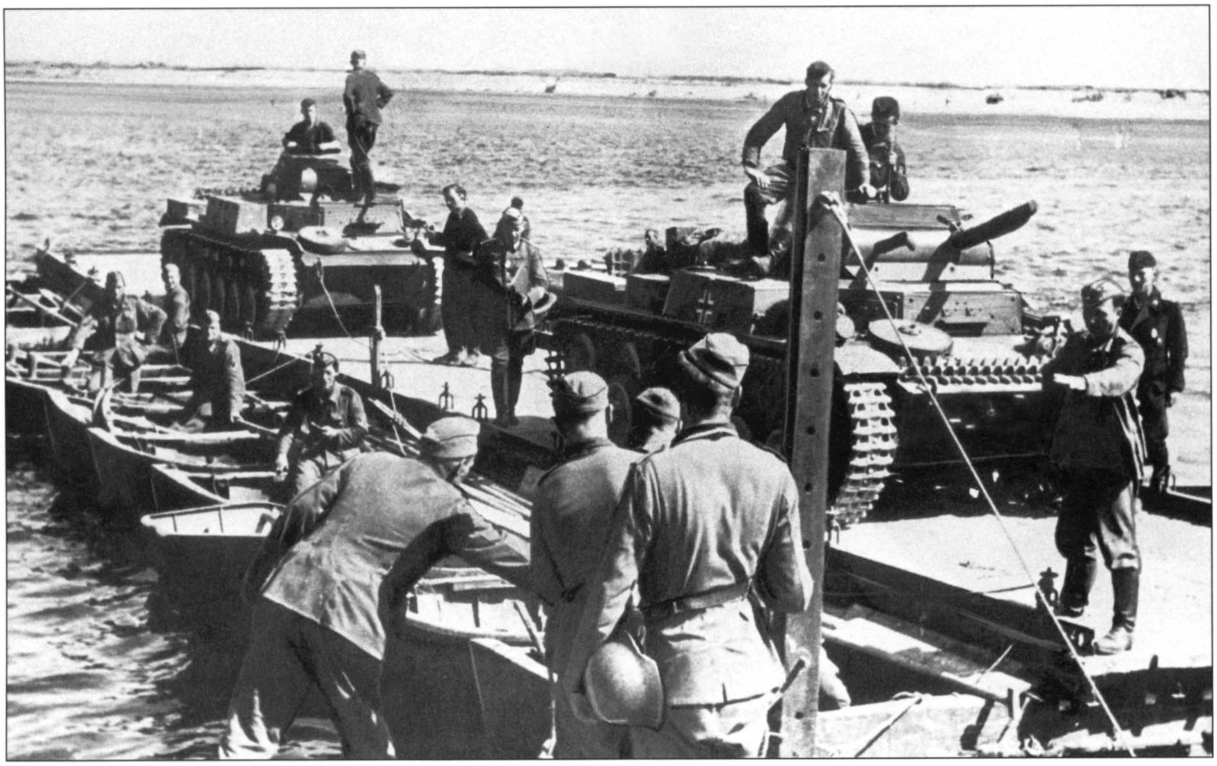
A Pz.Kpfw. II crosses a river near a blown-up bridge in the southern part of the front in July 1941. The tank carries the full set of markings, including the national cross on the rear superstructure just under the turret. The two-digit number is unusual, and the meaning of the black and white sign, visible on the superstructure to the left of the national cross, is unknown.



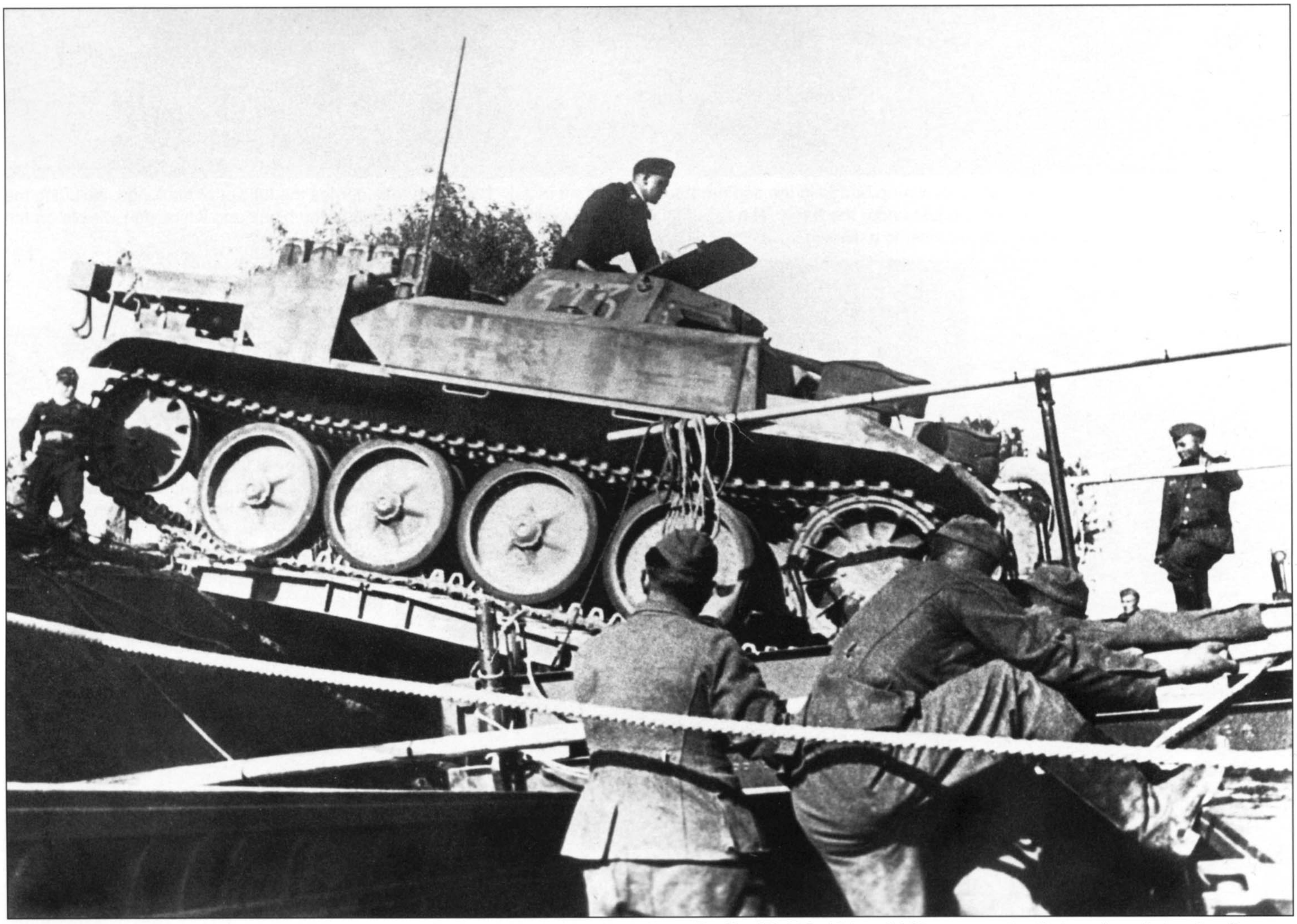
The forces that had no time to escape the German Blitzkreig were exterminated during combat or — like in this photo — in desperate attempts to cross rivers. Here, near a granary, a Soviet tank unit came to its end while trying to overcome a water obstacle. One of the BT-7 tanks received such a direct hit — probably from a bomb — that its turret was blown off. In the background is another BT-7 with spare tracks affixed to the sides of the superstructure, and behind it is a T-26. Of special interest are the two German helmets, one on the truck at left and another on the ground near the turret.



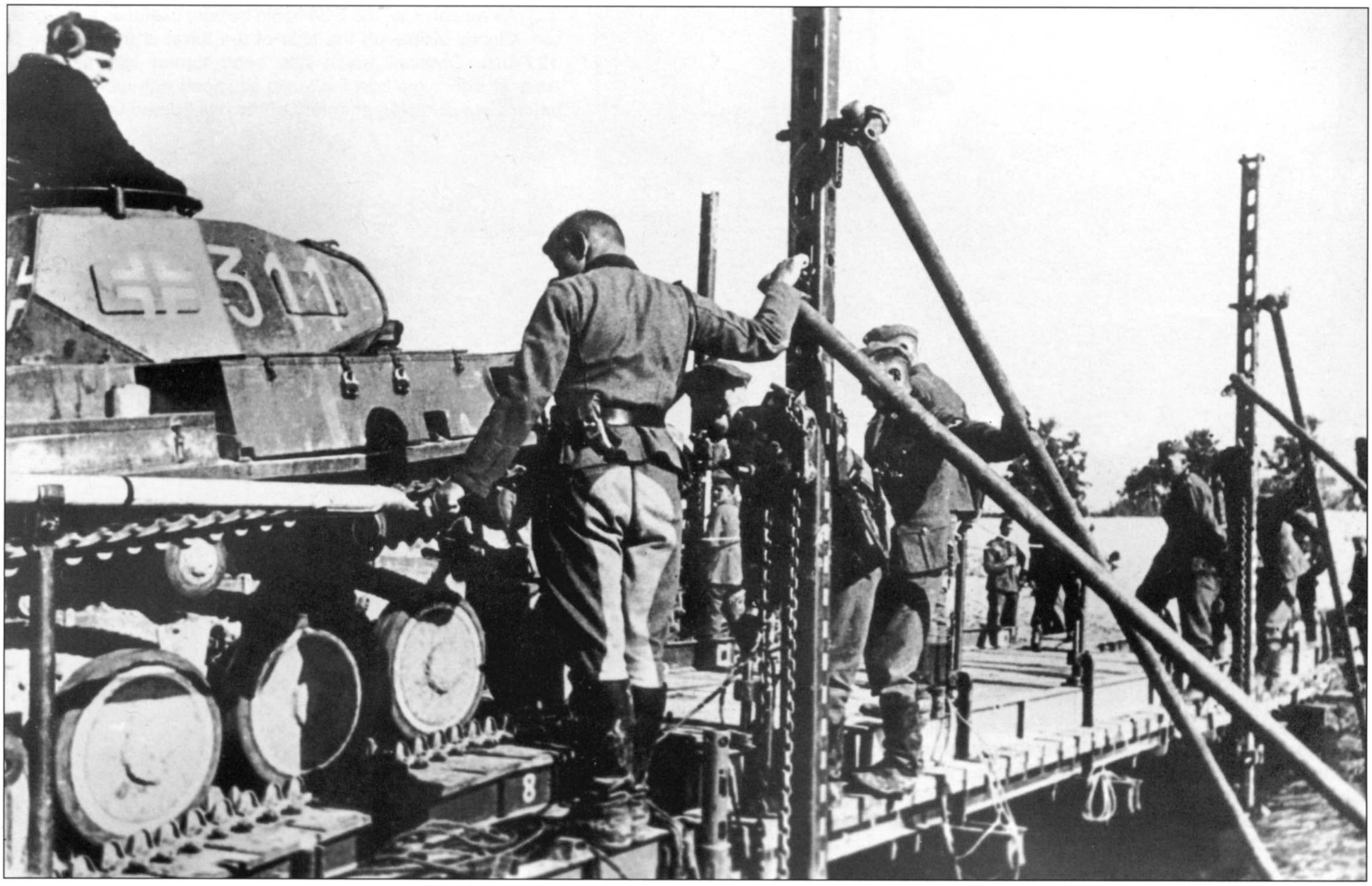
Probably photographed in another part of the same area, these vehicles were also destroyed while endeavoring to escape. Their attempt to cross a shallow river was also completely thwarted by the Germans. The tank on the left is the BT-7, which tried to reach the opposite bank on wheels. The tank in the middle of the photo is also a BT-7, but of the early production series with the cylindrical turret equipped with square hatches. Note the unit markings painted on the sides of the turret.



Unlike the Soviets, the Germans had no major difficulty crossing rivers, mainly because they often had more time to make preparations. They used many sorts of ferries, including parts of propelled pontoon bridges, as is seen in this photo. Note the colors of the second Pz.Kpfw. II: its frontal plate on the hull is painted in two colors, and it has old-style markings on the side of the turret — a white “2” with a rhomboid marking under it.

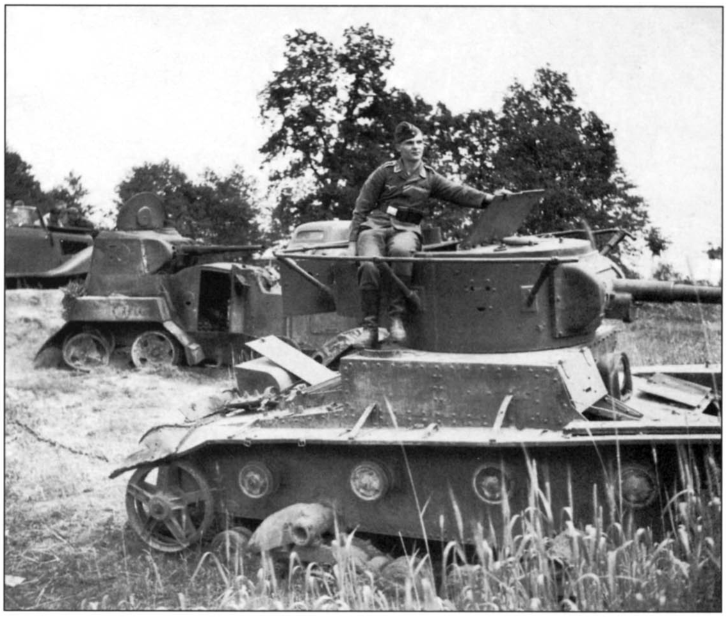


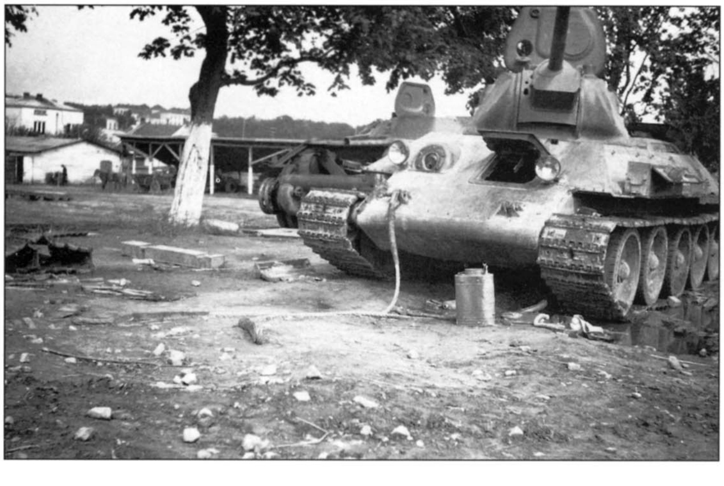
One of about 120 Flammpanzer IIs sent to the Soviet Union in three battalions, Pz.Abt.(F) 100, 101 and 102, crosses the Dniepr river during the German assault toward Smolensk in July 1941. There were two battalions of Flammpanzers used in Heeresgruppe Mitte, including Pz.Abt.(F) 100 in Pz.Gr.2, which attacked the city of Smolensk, providing great support to the attacking infantry. The tanks carried the same kind of markings (except the unit emblem), so the yellow number seen on the turret indicates the 3rd vehicle from 1st platoon in 3rd company. Each company was composed of 14 Flammpanzer IIs and 7-8 standard Pz.Kpfw. IIs. The total number of tanks in each such battalion was 73-80 tanks, a very strong force indeed.



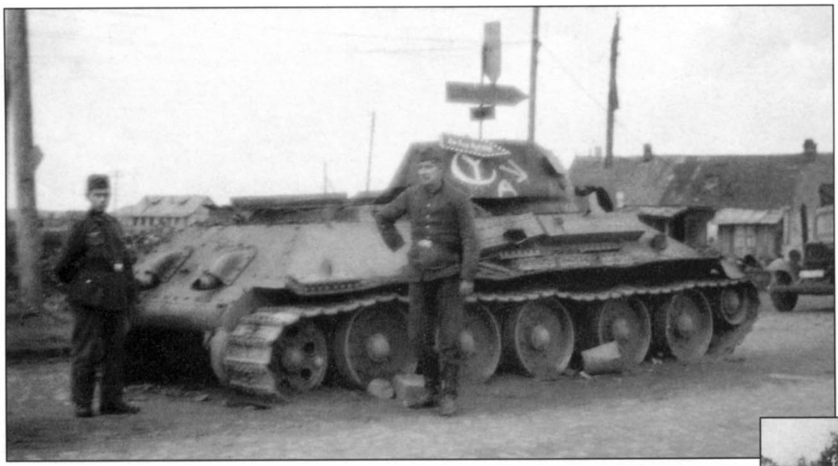
A Pz.Kpfw. II crosses the Dniepr river courtesy of a light bridge built by an engineer battalion in July 1941. The material under the tank tracks is a piece of light assault bridge used by motorized engineer troops in Panzer divisions, usually transported on the Sd.Kfz. 251/7. Of special interest are the markings on the turret, composed of white national cross and the yellow tactical number "311" on all three sides. The tank probably belonged to Pz.Abt.(F) 100 or 101.

Two Soviet AFVs knocked out by the Germans during an assault are inspected by military tourists from the rear units. In the foreground is a T-26 command tank with frame aerial and an opened door to the rear hatch of the turret. Note the many construction details. In the background is a BA-10 heavy armored car with tracks stored on the rear of the superstructure. Note the open hatch of the turret — the ventilation mushroom may be seen.

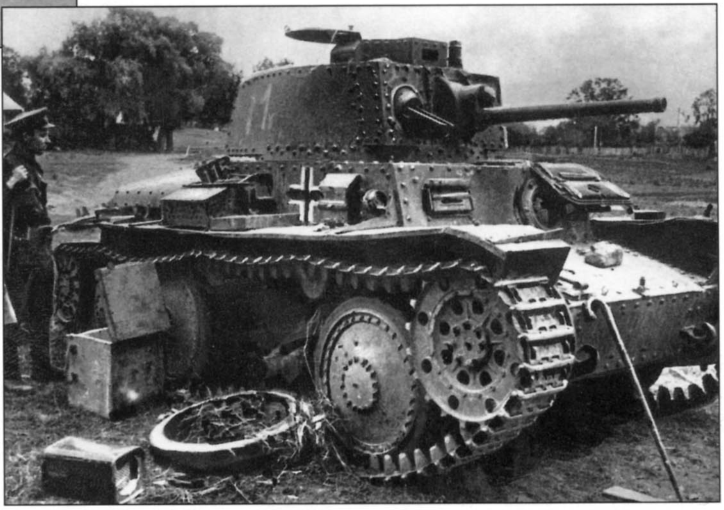




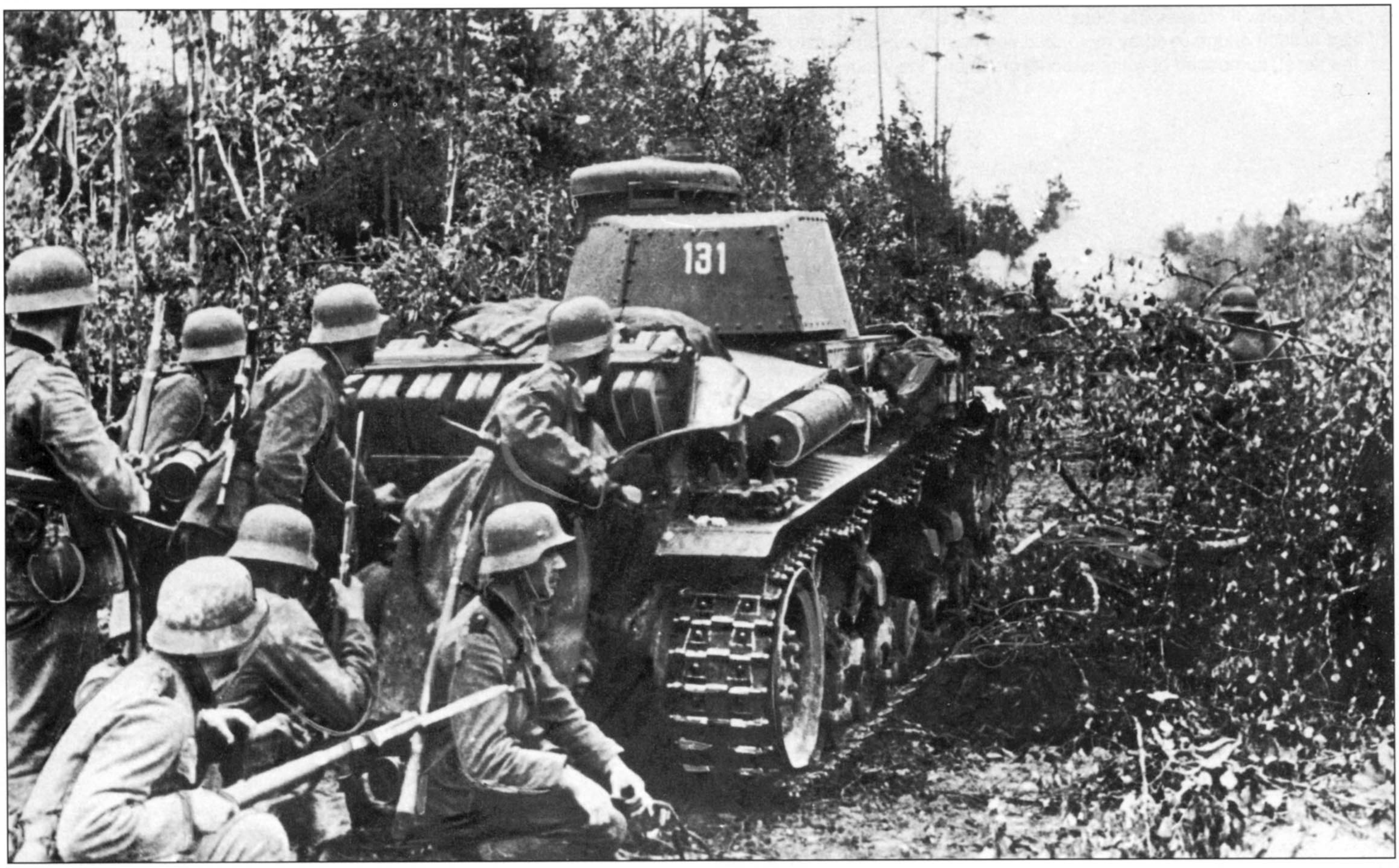
This photo probably shows a Red Army repair depot captured by the Germans in western Ukraine. In the foreground is a T-34 Model 1941 with a 76mm F-34 gun installed in the turret and 57mm frontal armor. It is devoid of the ventilation mushroom in the turret hatch. All other details typical of all production series from the period of 1940 to mid-1941 are clearly visible: two lights, the lack of armored cover for the machine gun in the glacis, and the driver's hatch with one visor. Note the second T-34 in the background. Part of the superstructure has been shot off, exposing the interior details of the vehicle.



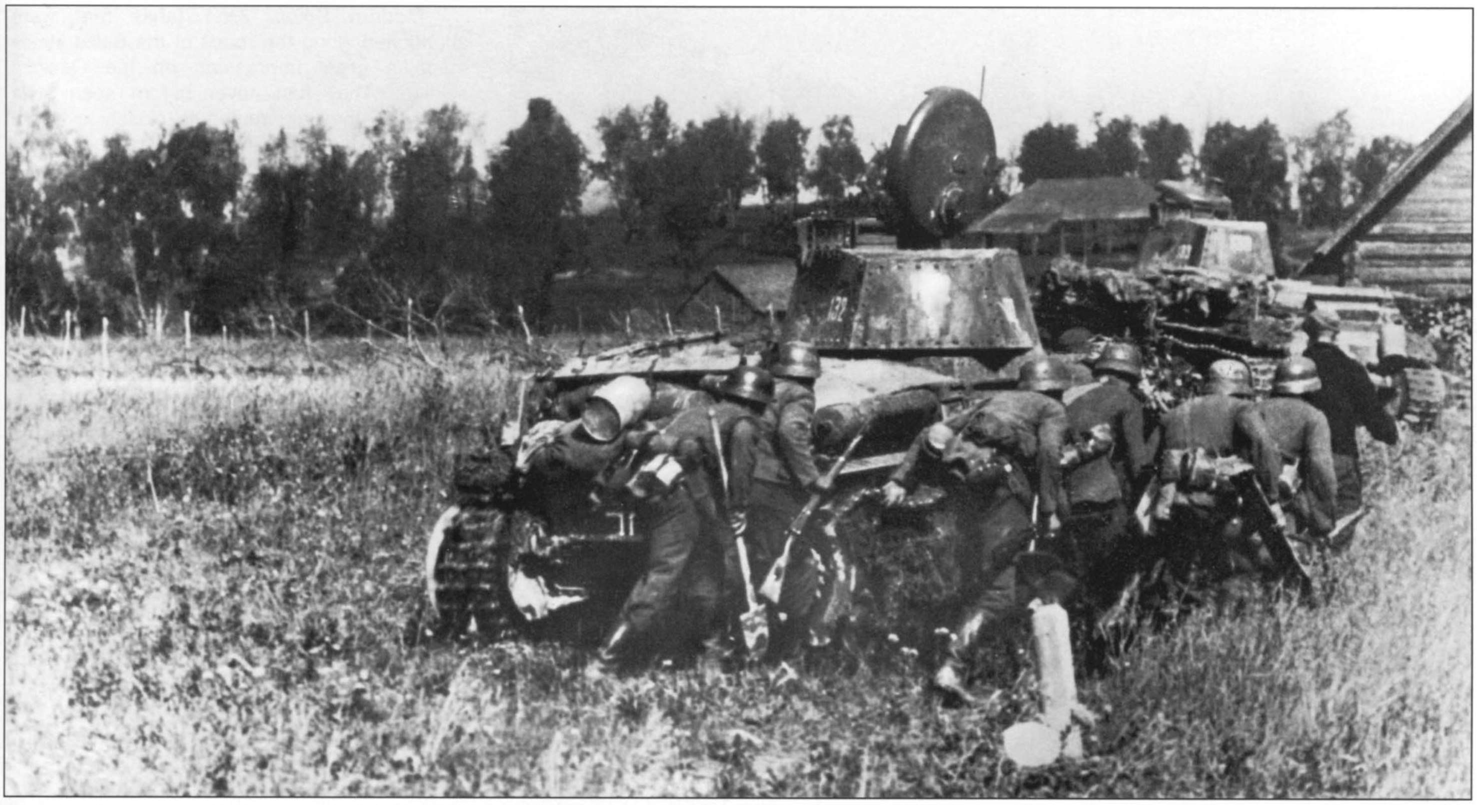
As we can see, the T-34 could be very useful as a signpost, too. Clearly visible on the side of the turret is the emblem of 12.Panzer-Division, which has been turned into a kind of "peace" sign. Note how the tanks equipped with rubber-rimmed wheels are slumping after the rubber has burned up.



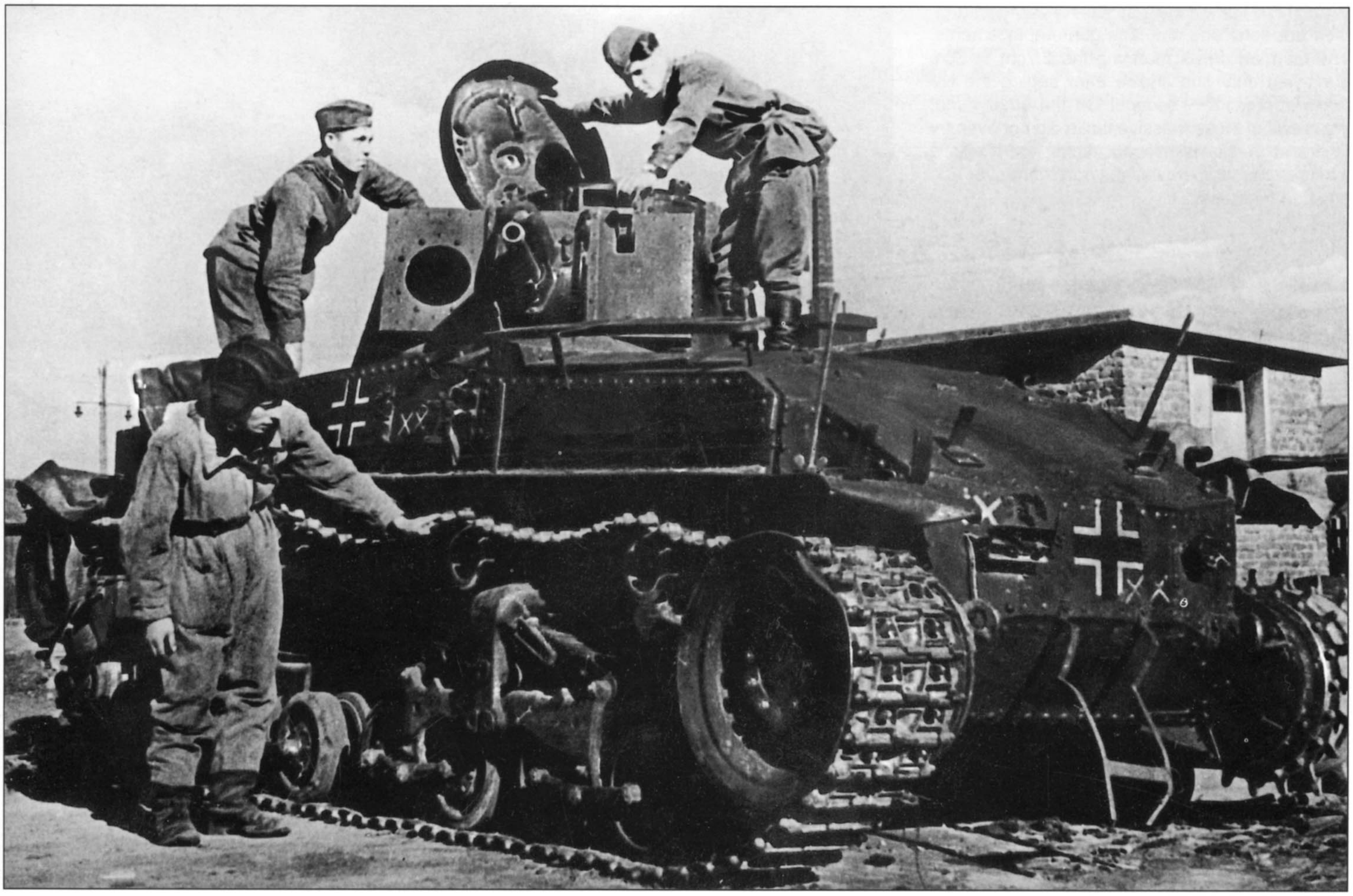
The road taken by Generaloberst Erich Hoepner's Panzergruppe 4 to Leningrad was difficult and long. Enemy resistance was very strong and caused Hoepner's Panzer divisions to suffer many casualties. Here is an example — a Pz.Kpfw. 38(t) from 8.Panzer-Division, which was knocked out of action and captured by the Soviets. Note the markings on this tank. On the turret is a yellow number "1". Adjacent to it is the emblem of the division, also in yellow. However, the number on the turret is not the tactical number of the vehicle. This number— a white "115" — is just visible on the special plate under the markings on the turret.



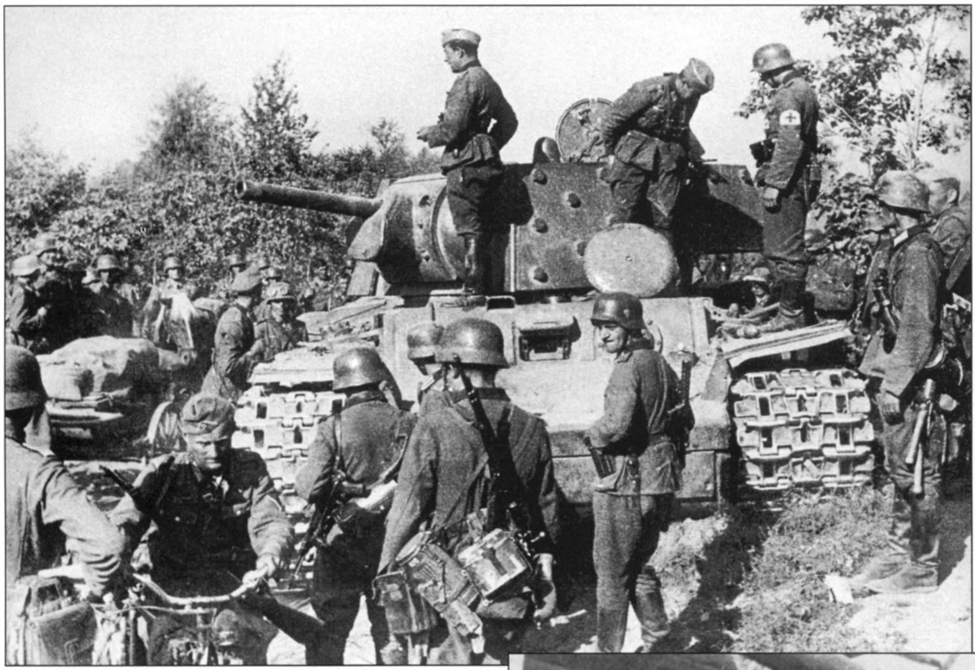
One of the reasons for the difficulties endured by Pz.Gr.4 was the weakness of its armament. One of its divisions, 6.Panzer-Division, was mainly equipped with outdated Pz.Kpfw. 35(t)s, so it is hard to say that it was a powerful unit, even though it did have 232 tanks. These Czechoslovak tanks were armed with weak 3.7cm guns that fired anti-tank rounds that could penetrate 30mm-thick armored plates only at a range of 500 meters. In this photo we see one of 6.Panzer-Division's Pz.Kpfw. 35(t)s during action in a Russian forest. Note the tactical number on the turret — quite unusual by German standards.



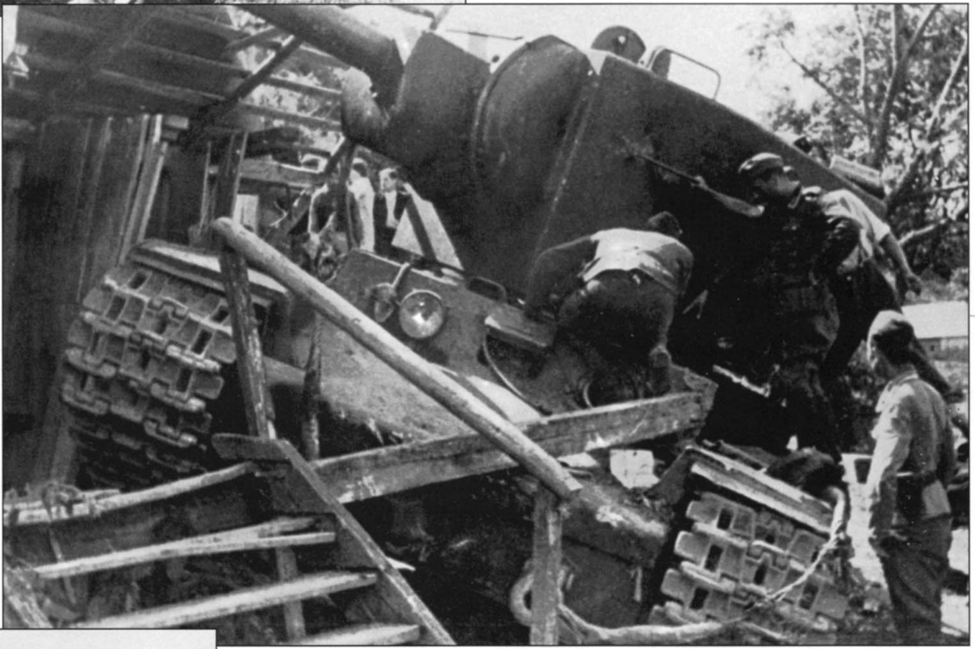
An infantry squad takes cover behind a Pz.Kpfw. 35(t) from 6.Panzer-Division, which was employed by XLI Pz.Kp. attached to Pz.Gr.4 of Heeresgruppe Nord. There were 232 tanks in the division on 22 June 1941. Though the division was strong on paper, the majority of its tanks were 155 Pz.Kpfw. 35(t)s supported by five command vehicles. Both Pz.Kpfw. 35(t)s in the photo have standard camouflage and markings, including closely spaced tactical numbers repeated on the three sides of the turret. The rear tank has the tactical number "132", while the lead tank has "133".



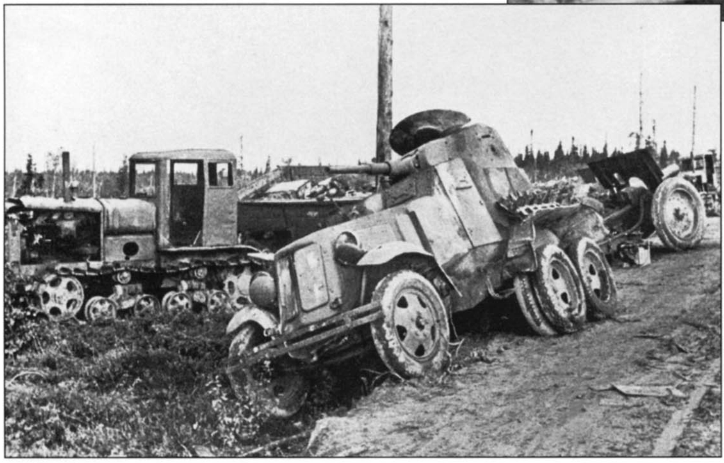
Soviet soldiers inspect a captured Pz.Kpfw. 35(t) from 6.Panzer-Division. Note the divisional markings — XX — on the side of superstructure, as well as another set on the rear hull plate. By the end of August 1941, 6.Panzer-Division had lost 35 tanks, and another 33 had been damaged. By the winter of 1941/42, almost all of the division's tanks had been lost in the fields or forests of northern Russia, mainly due to breakdowns.



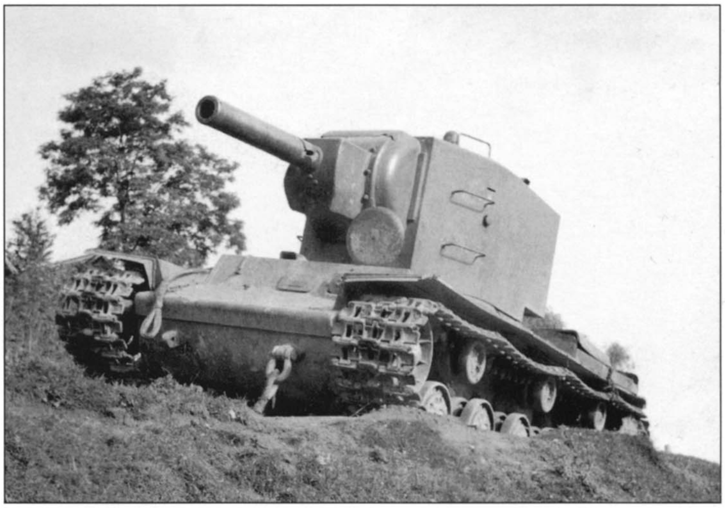
Modern Soviet KV-1 tanks that were abandoned along the roads of the Baltic states made a great impression on the German soldiers. They had never before seen such giants, so they all wanted to closely examine these vehicles, as is evidenced by this photo. Here at least a couple of dozen soldiers are admiring a KV-1E Model 1941 heavy tank. Note the appliqué armor bolted to the turret and the short F-32 gun.



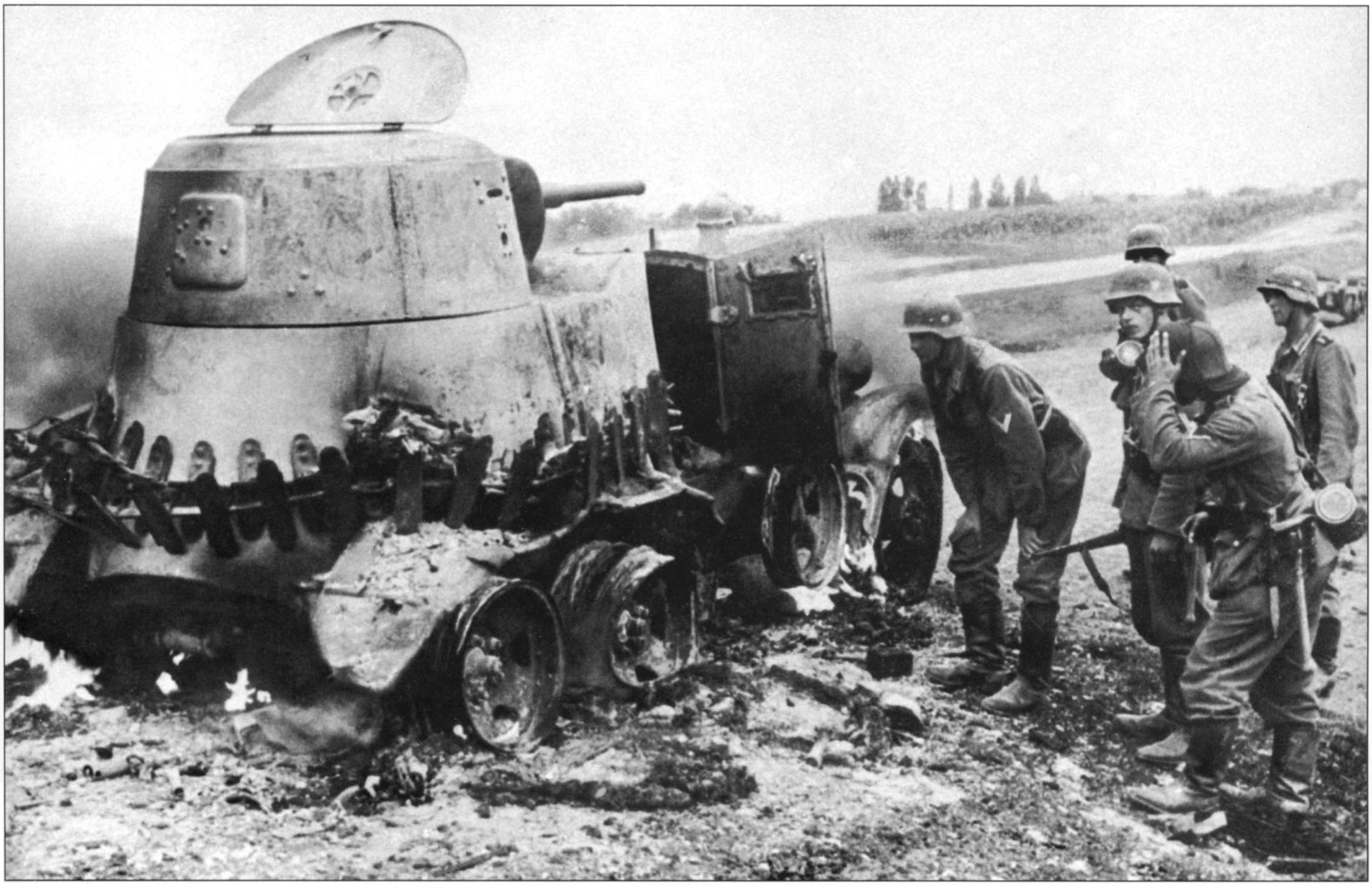
In this photo several Germans are inspecting a KV-2 heavy tank that was immobilized near a house in a village. During the opening days of the war, German units of Pz.Gr.4 had a lot of trouble with the Soviet 2nd Tank Division, which would use its KV-2s to charge their positions and anti-tank gun emplacements. The German crews manning the 3.7cm or 5cm guns had only one choice after seeing the KV tanks approach — escape. On the other hand, the crews of these massive tanks did not even try to fire at these insignificant obstacles; it was a waste of rounds. They simply ran them over and crushed the guns.



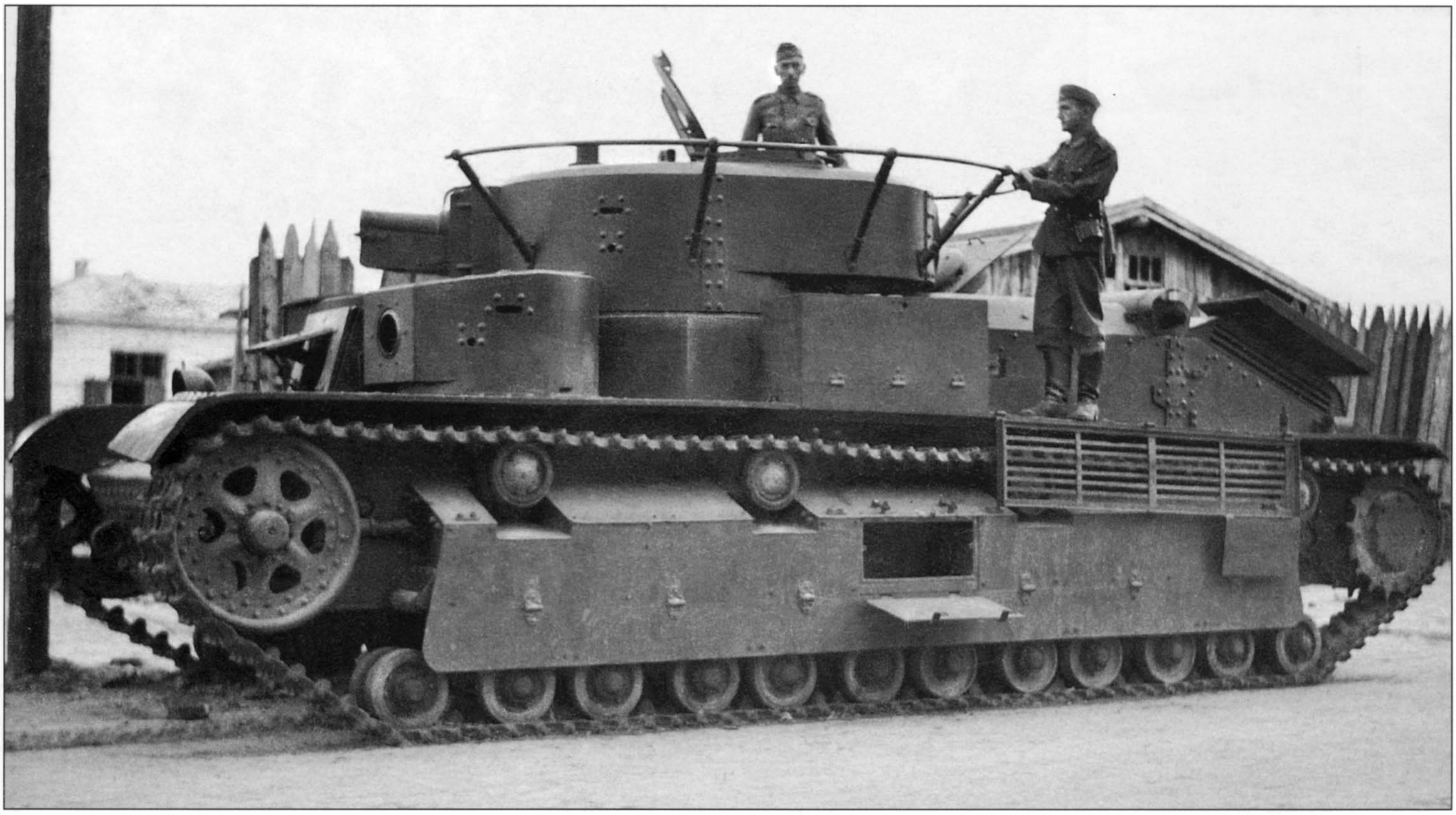
Damaged and abandoned vehicles and guns of a Soviet armored division somewhere on the route of advance of Pz.Gr.4. In the foreground is a BA-10 heavy armored car, the best vehicle of its type in the Red Army. Its armor was a little thinner than that used on German armored cars, but it was much better armed. Installed in the turret was a 45mm model 38 gun, the same weapon used in T-26 and BT tanks. The armament of this vehicle was better than the guns of the German Pz.Kpfw. I, Pz.Kpfw. II and a few versions of Pz.Kpfw. III tanks. After all, the BA-6 and BA-10 armored cars had been in production since 1935.



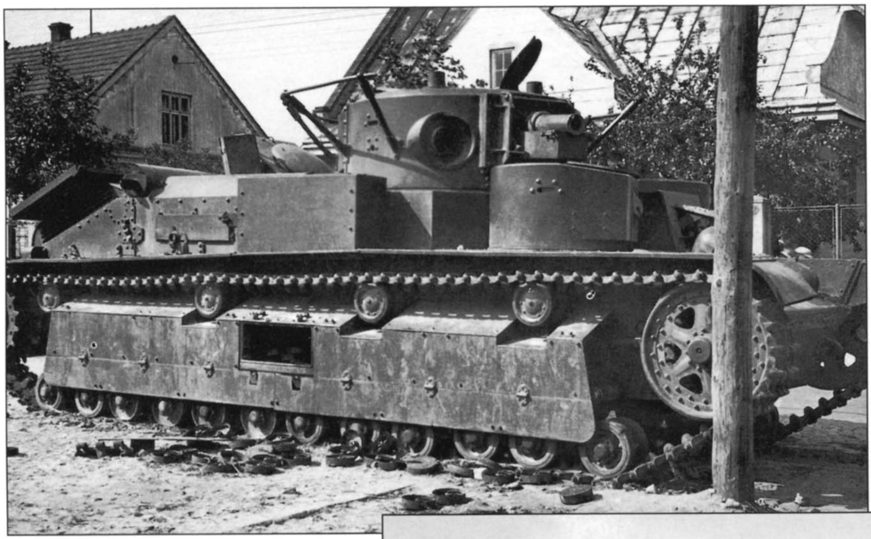
Most of the KV tanks the Germans came across in Lithuania were abandoned due to mechanical breakdowns, lack of fuel or minor combat damage. This KV-2 is a victim of one of these problems. Note the hole in the gun barrel near the mantlet.



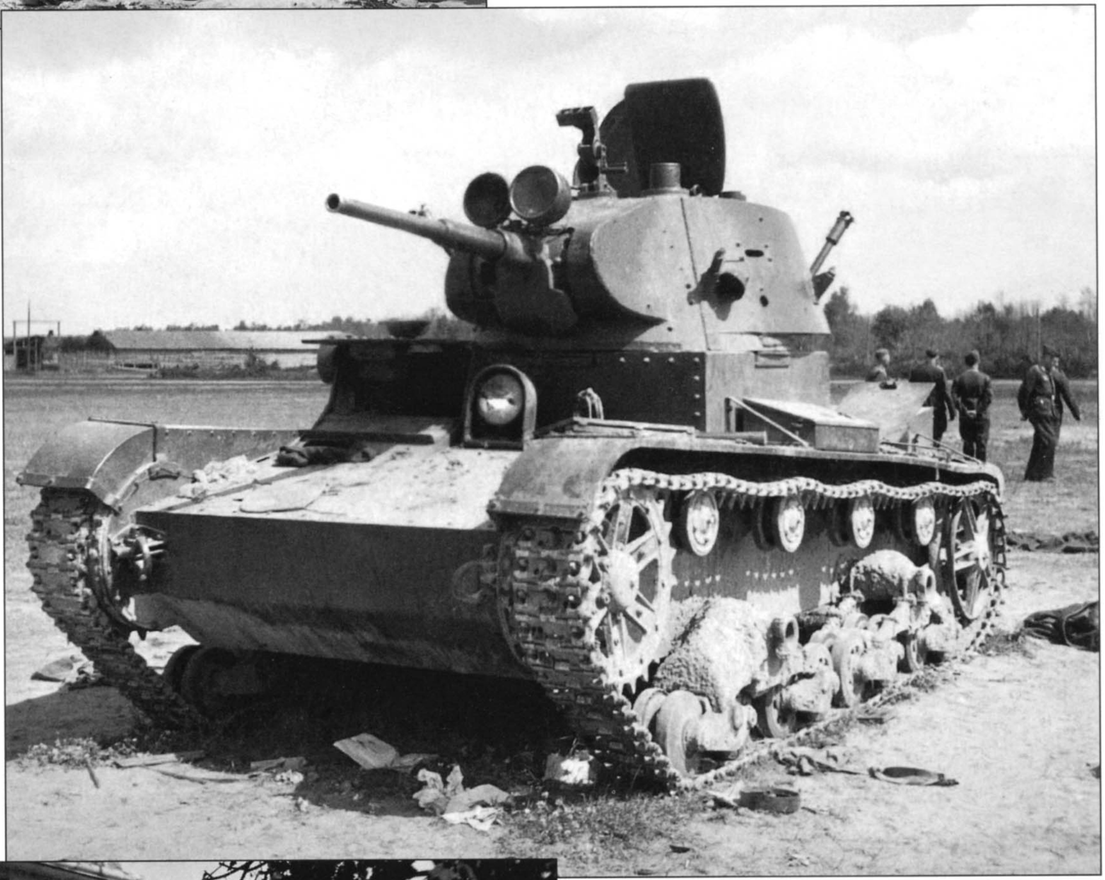
The gesture of the soldier nearest to the camera indicates his amazement at the total destruction inflicted on this BA-10. The armored car was totally demolished by a direct hit to the fuel tank. Supplementary track was strapped around the hull, which could be placed over the rear wheels to convert it into a half-track to help negotiate difficult terrain. Note the turret details: the hatch in its rear and the interior elements of the ventilation mushroom on the top hatch.



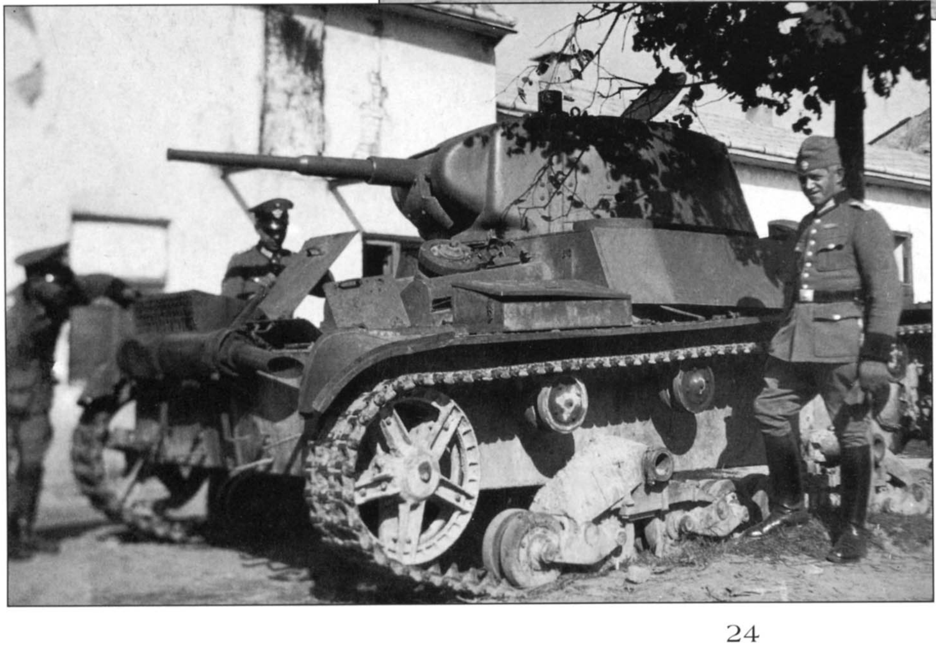
The Soviet medium tank of the 1930s, the T-28, was big, slow and had thin armor. There were 490 of these tanks produced between 1932 and 1939, and about 400 of them were in service at the beginning of Operation "Barbarossa", mainly in the 3rd, 5th, 8th, 10th, and 15th Tank Divisions. This is a command version of the T-28, apparently abandoned due to a mechanical breakdown or fuel shortage. Note the short-barreled KT-28 76.2mm gun.



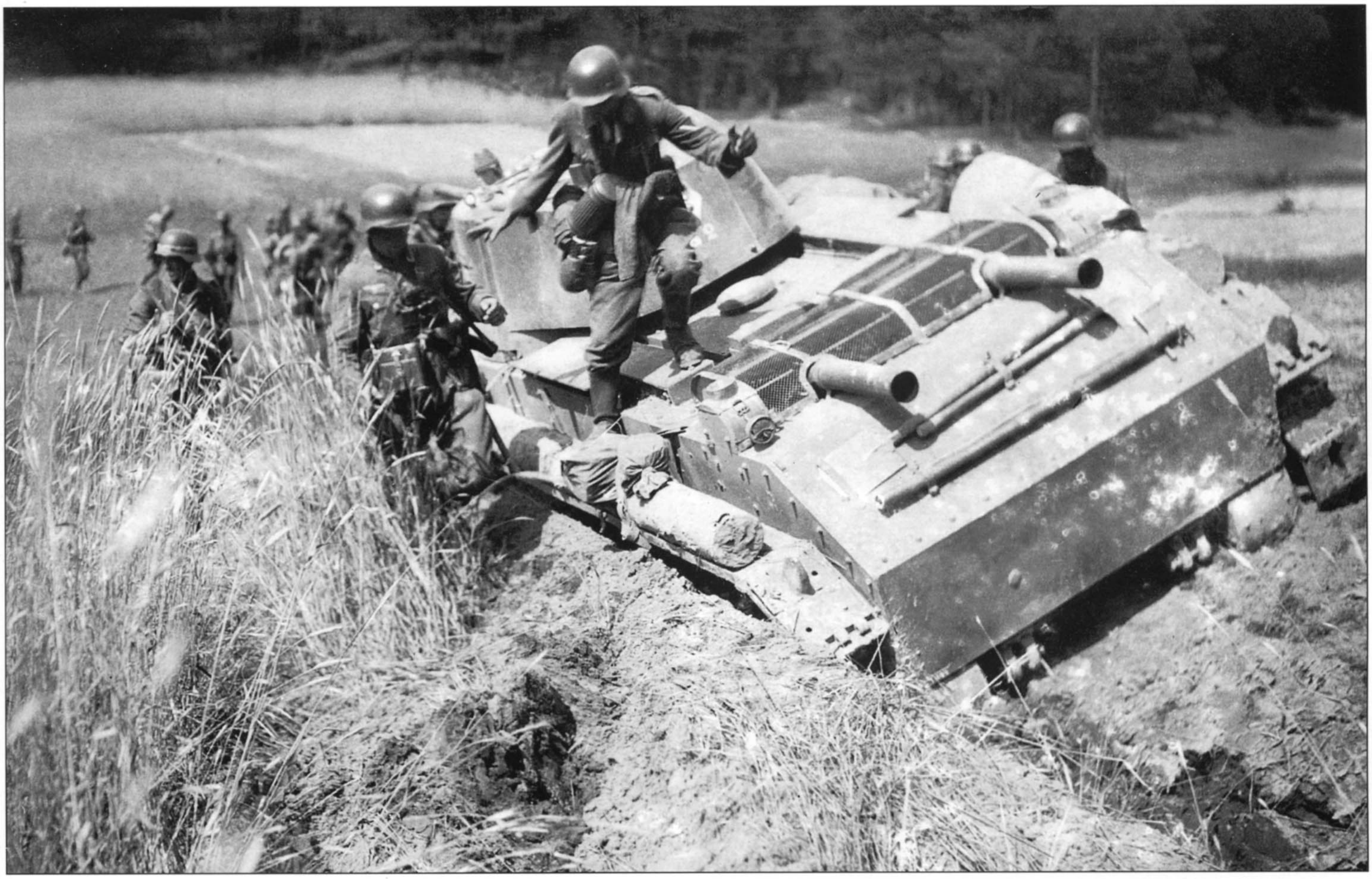
During the first four months of the war T-28 tanks were used in two very atypical and famous actions. The first was in the very early days of July when a lone T-28 charged through the streets of Minsk that were full of German troops. The second was in early October when, once again, a single, very old T-28 armed with an L-11 gun was taken from a training center and successfully used to block a road among the forests on the way to Moscow. This T-28 command tank was captured by the Germans somewhere in the western part of the Soviet Union.



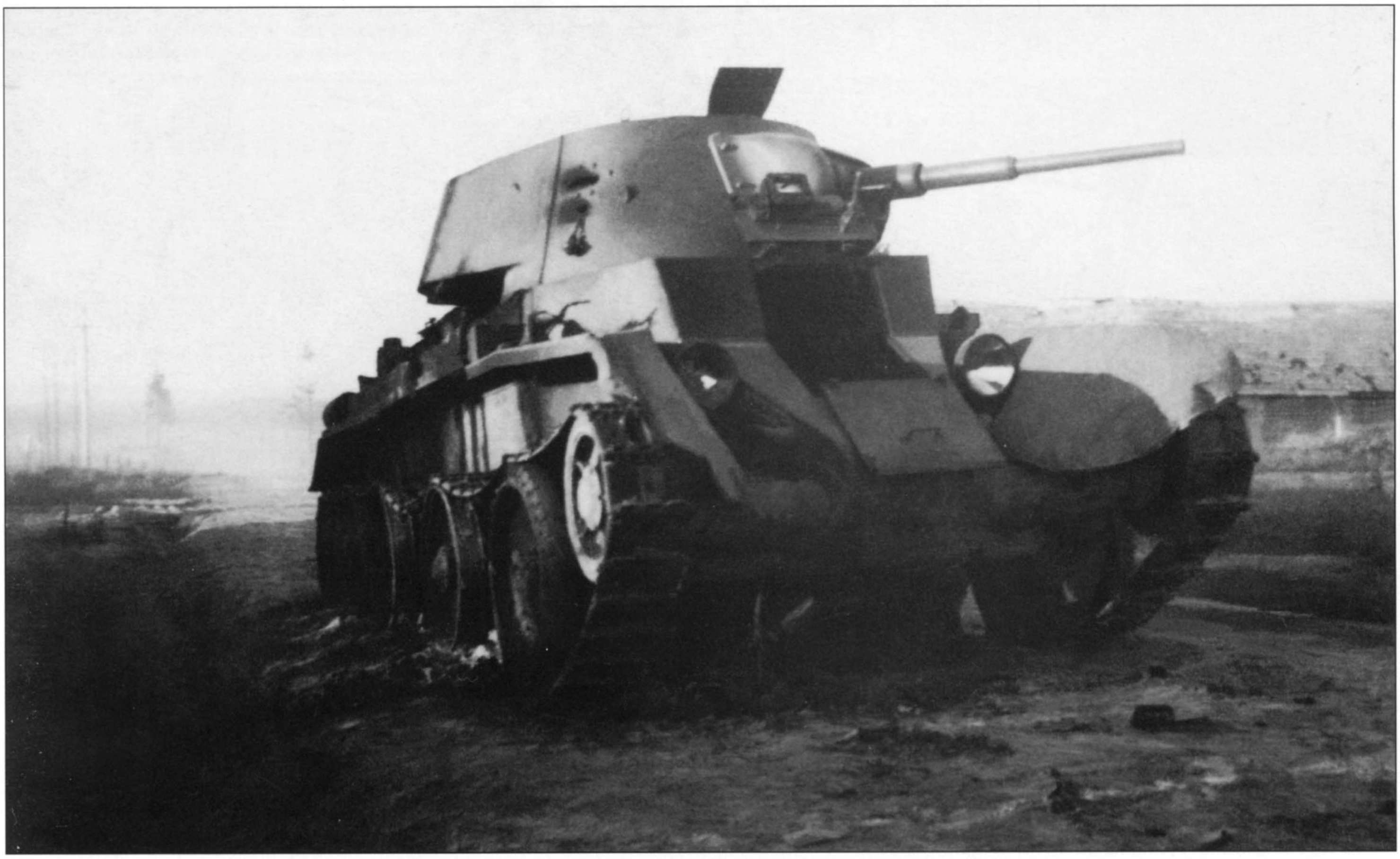
Very good shot of the T-26 Model 1938 showing many details of this tank, such as the two lights (one fixed to the turret and the second to the gun for illumination of targets) and the mount for an anti-aircraft machine gun. Of special interest is the two-color camouflage clearly visible on the side of the turret.



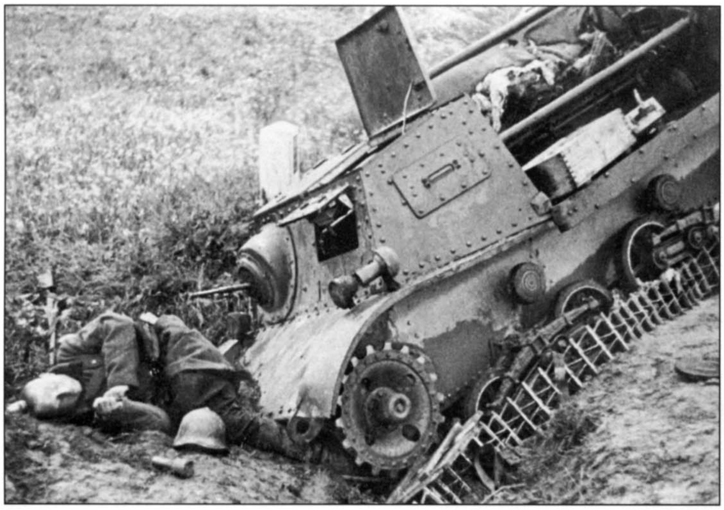
Another T-26 tank, this time the Model 1939, abandoned by the Soviets after a collision with a tree. The position of the turret (turned to the rear) indicates that the crew was fighting the rear during the incident. The model 1939 differed from earlier versions in that the armor plates on the superstructure were not vertical.



German soldiers enjoy looking at another tank found along their way. This one is a BT-7 bogged down in the soft ground of a corn field. The photo shows many details of the upper surface of the rear portion of the tank. The unit emblem on the rear of the turret is partially blocked by a soldier.

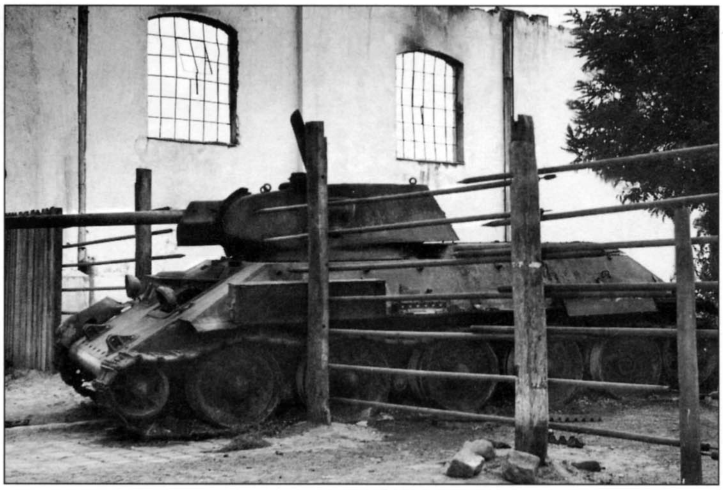


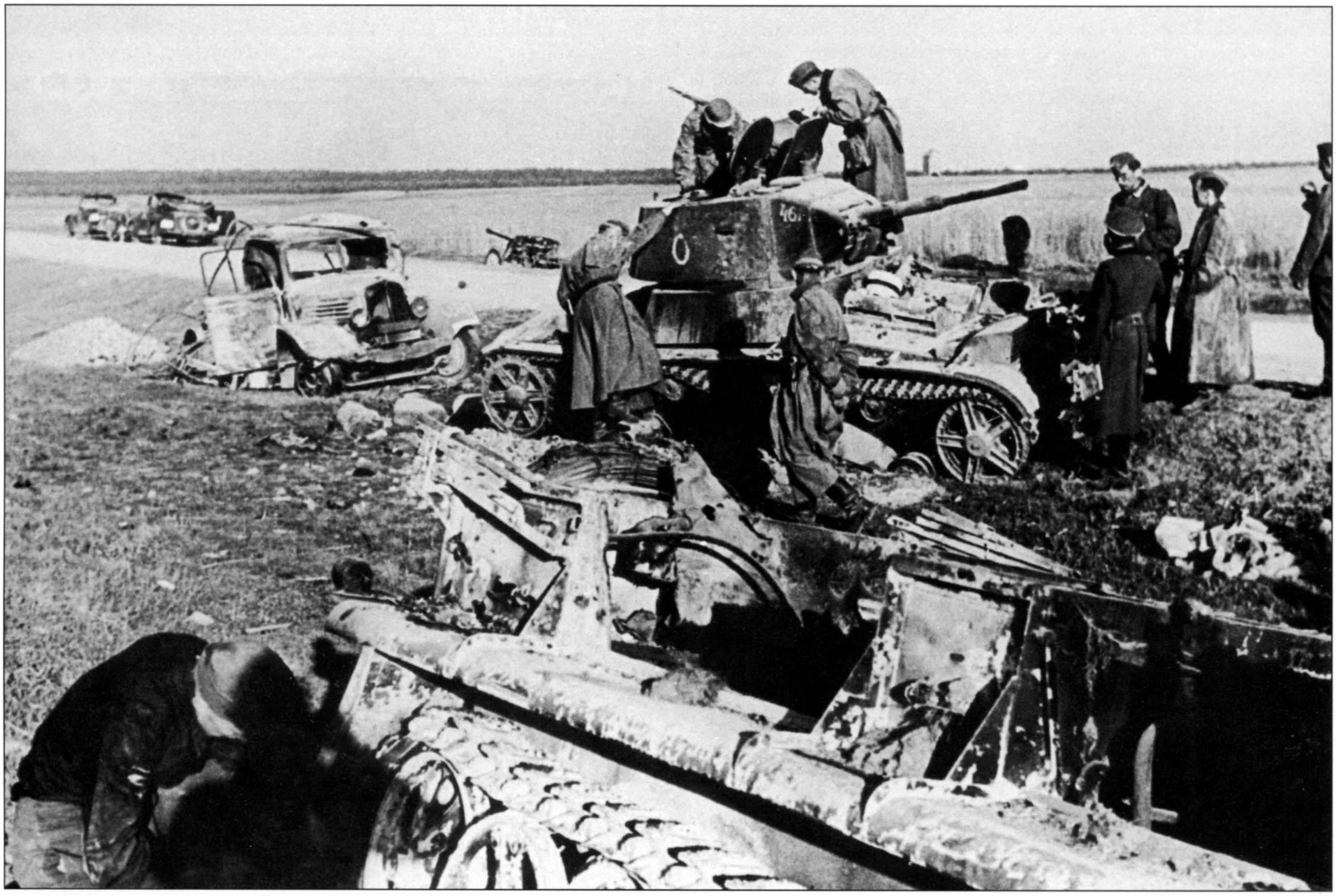
Another BT-7 abandoned on a road in a village. This tank was hit hard during a duel and was destroyed mainly by internal fire. Note the areas on the turret that have been blackened from smoke. The crew of this tank was probably lucky and escaped, a conclusion drawn from the open driver's hatch.



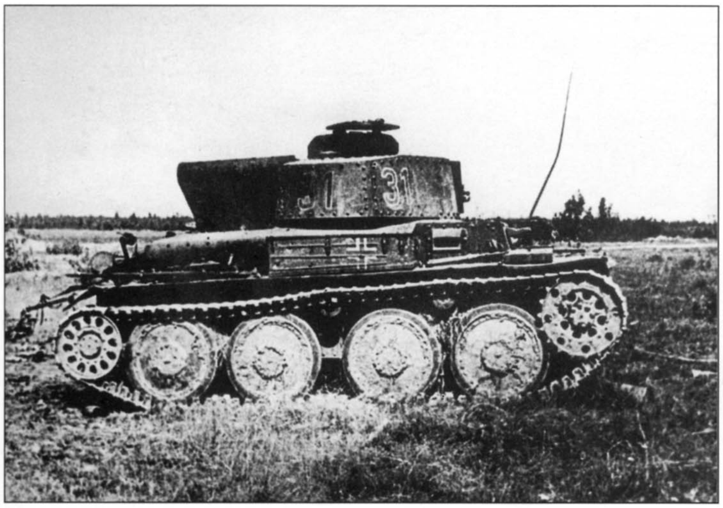
The soldier seen here had no luck at all — after being killed his legs were crushed by a Komsomolets artillery tractor used for towing anti-tank guns. This is probably a late production version with an enlarged machine gun position. This type of vehicle was very unusual because it was fully tracked, very small, armed with a machine gun, and the compartment for the gunner and driver was covered with 7-10mm armored plates. It was more of a combat vehicle used to support infantry or an anti-tank battery than simply a tractor for a gun crew.

During the series production of the T-34 tank in 1940, a few changes were introduced, including the most important one, which aids in the visual identification of the late series — the exchange of the 76.2mm L-11 gun for the 76.2mm F-32 gun. This re-arming was not the reason for the tank's name change, though. This was done a little later after the introduction of other changes, particularly some technical ones, which allowed for a faster production rate. So the T-34 Model 1941 was born, which was visually identical to the late T-34 Model 1940 with the F-32 gun. This photo shows such a tank, which has all the details typical of the series from 1940/41 and 1941: two lights on the glacis, one driver's periscope, early tow shackles, and a cast turret with an F-32 gun. The large box on the front part of the left mudguard is atypical of this tank.

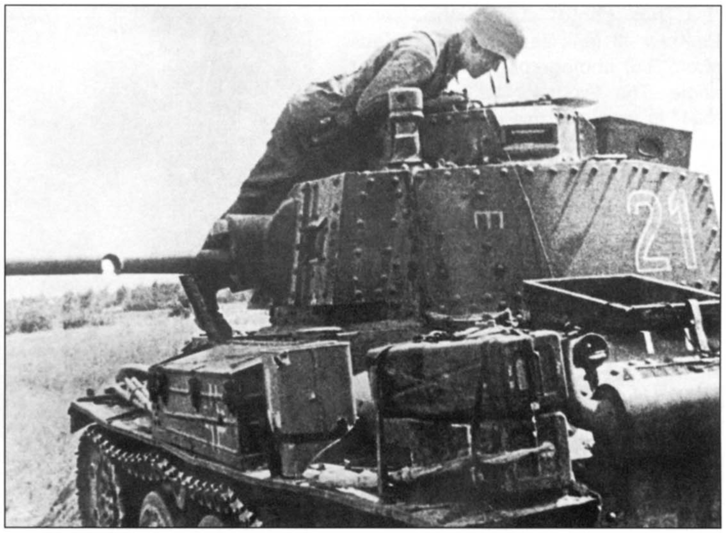




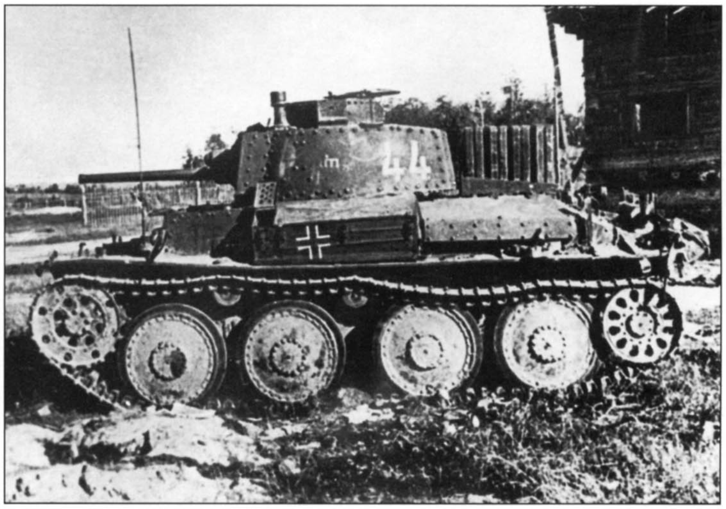
A view of a killing ground following an armored clash. In the foreground is a shot-up Sd.Kfz. 10. Behind it, with its turret traversed to the rear, is a T-26 Model 1939 destroyed during the retreat from combat. Note the turret markings on this tank — the circle is the marking of the unit, but the meaning of the number seen on the front part of the turret side is not known. Visible in the background is a 5cm PAK 38 gun.



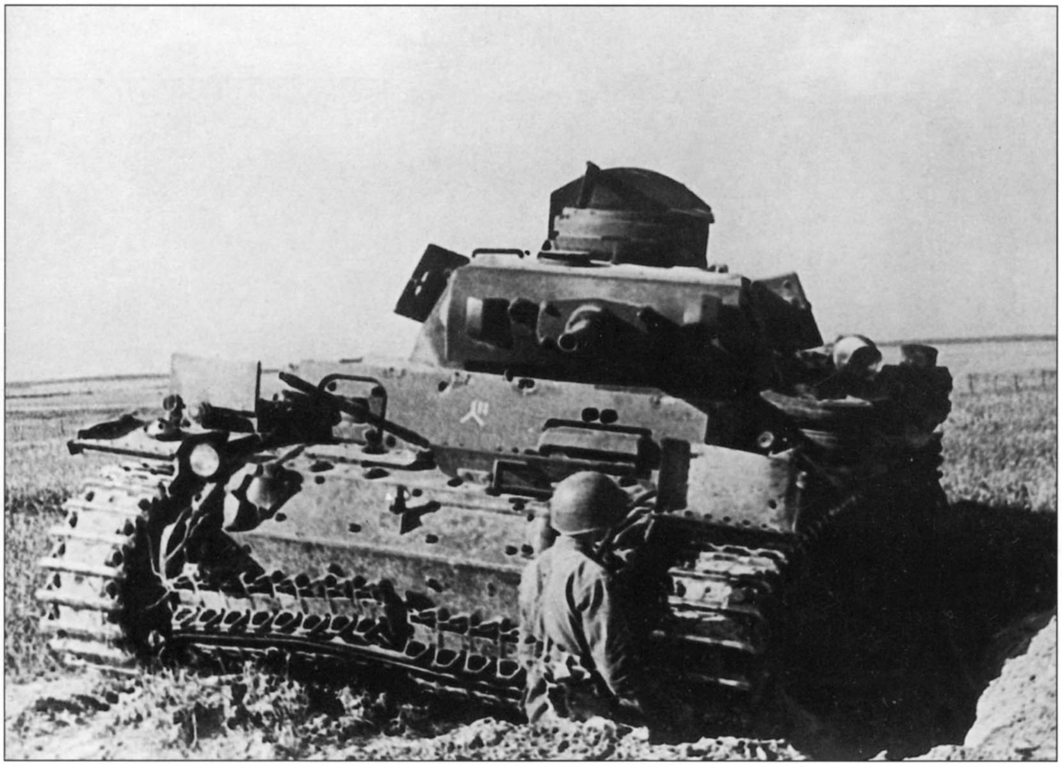
The German 20.Panzer-Division was involved in heavy fighting northeast of Smolensk, where the division had to battle against Soviet counterattacks. The 20.Panzer-Division repulsed all the Soviet attacks and retained its front line, but it suffered heavy losses due to the Soviet gunners and the breakdowns of tanks. Because the Soviets regained some terrain, all these tanks were lost. This Pz.Kpfw. 38(t), marked with the tactical number "31", is from 3rd company of Pz.Rgt.21. The number on the rear of the turret is painted in two colors, while the other one, painted only on the side, is just a white outline. The national cross was painted on the box in the same way.



Another derelict Pz.Kpfw. 38(t), tactical number "21", is inspected by a Soviet soldier. Note that the barrel of the 3.7cm gun is pierced with a hole made by a Soviet 47mm round. The tactical sign of 20.Panzer-Division is painted in yellow on the turret.

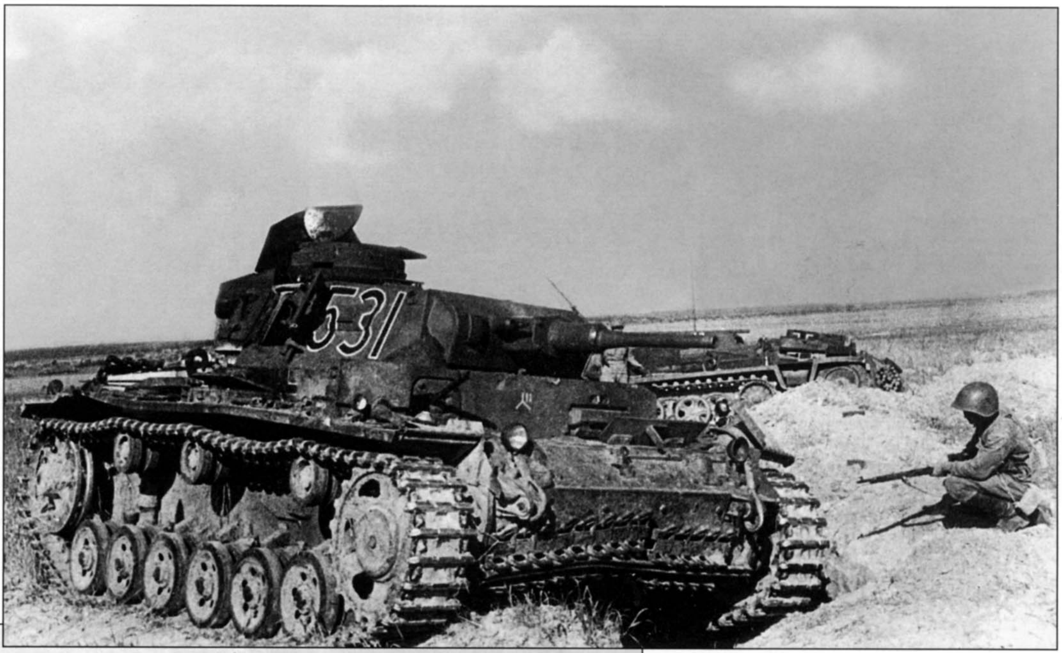


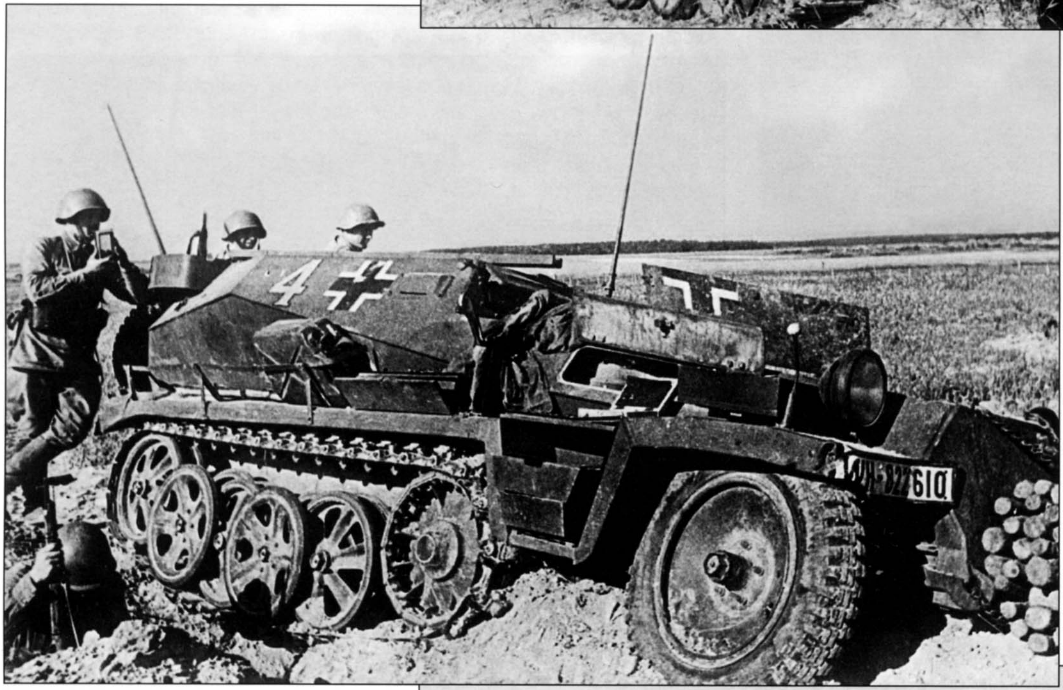
Yet another Pz.Kpfw. 38(t) of 20.Panzer-Division (this time from 4th company), which was most probably abandoned intact by its crew due to minor damage or the lack of fuel. It is marked and painted in almost the same manner as the ones in above photos. On the turret is a two-digit number painted in one color, probably yellow, while to the left of it is the divisional sign. The camouflage of the tank is covered by dust, while the wheels display a heavy coat of mud. By September 1941, 20.Panzer-Division had lost over 100 of its 240 tanks available on 22 June 1941, including almost all of its Pz.Kpfw. Is.



During the bitter fighting around the Smolensk pocket, units of the Red Army caused the Germans their first big losses and won a few skirmishes. One of them was won west of Rosslavl, when attacks by 3.Panzer-Division directed against the Soviet lines on the Sozh river were repulsed by the retreating 61st Corps of the 13th Army. What follows is a set of five photographs taken on 20 July 1941 featuring several vehicles from 2nd battalion of Pz.Rgt.6 that were knocked out during fights on bridgehead northeast of Krichev.

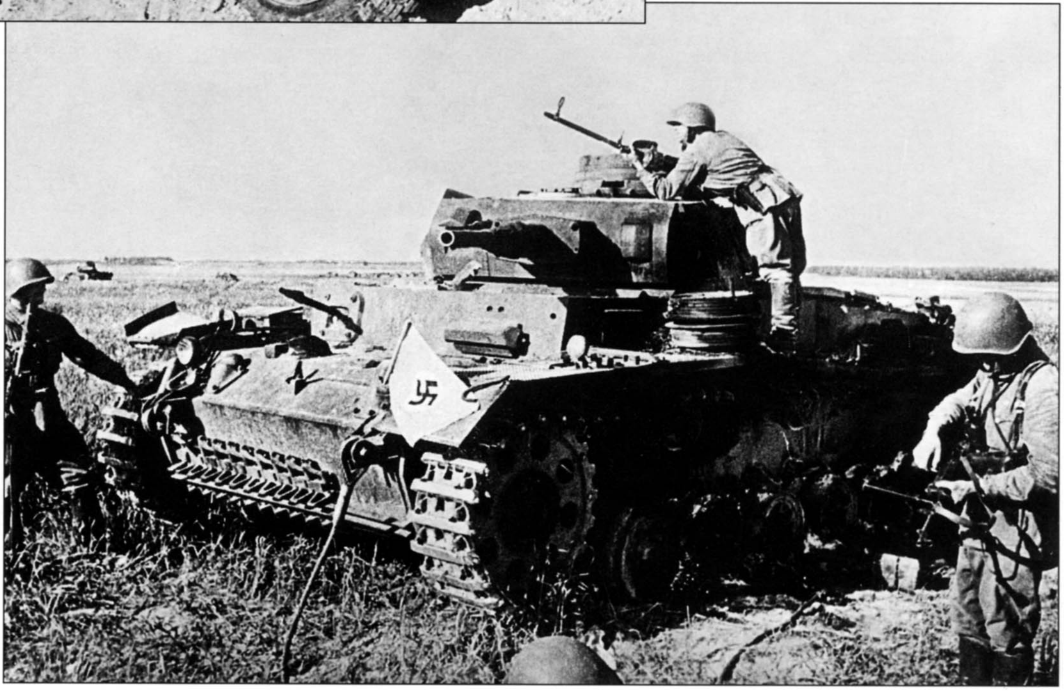
This photo shows the same Pz.Kpfw. III tank seen in the previous photo, but photographed from another angle. The two-color tactical number "531" is visible in this photo, as is the emblem of the division, painted in yellow on the frontal plate of the superstructure. Note the two indications of round penetrations on this plate.

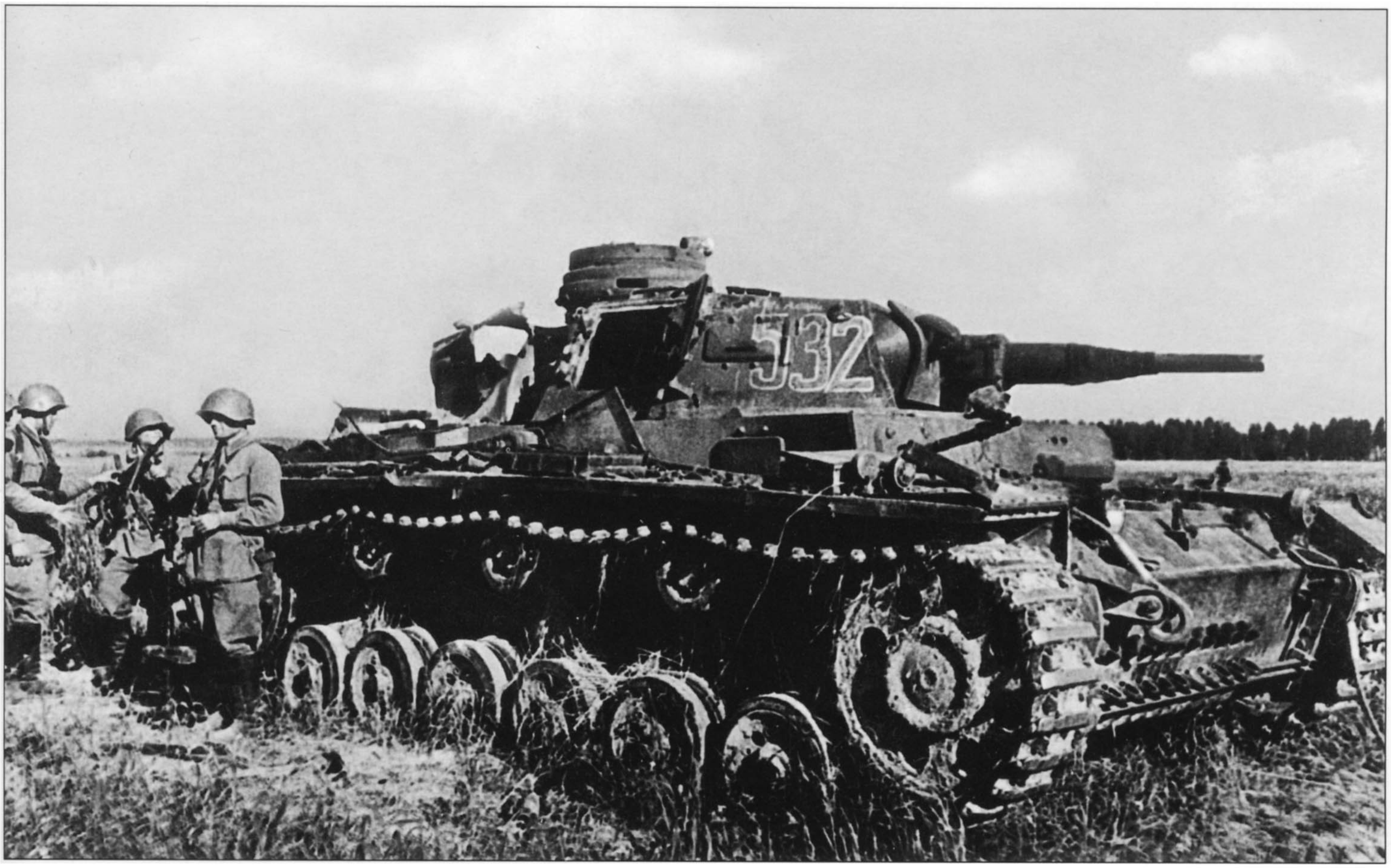




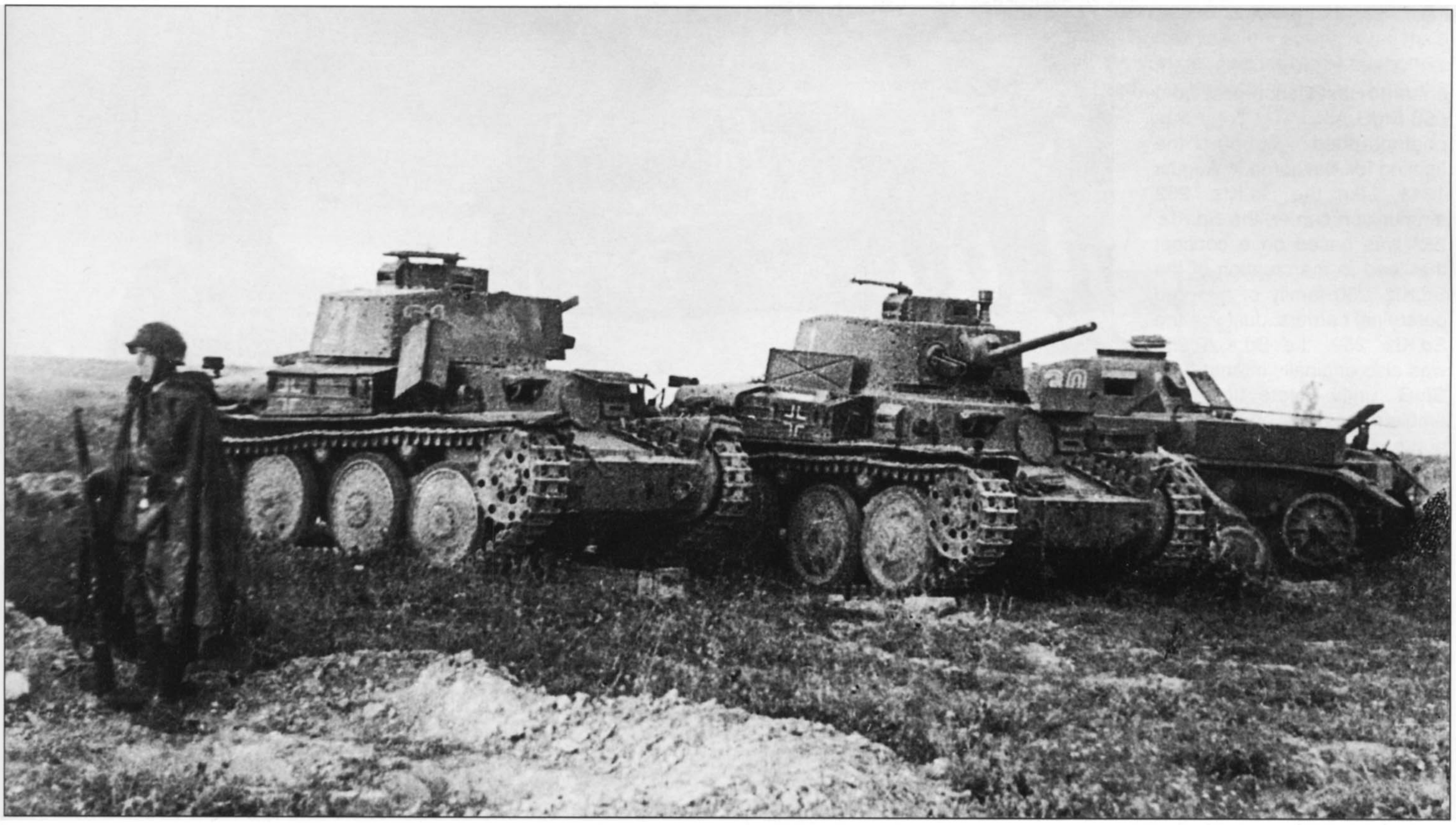
This Sd.Kfz. 253 light armored observation post half-track belonged to 5th company of 2nd battalion. It was abandoned by its crew after becoming bogged down in a trench. The half-track shows no trace of damage — even the lights are intact. Note the markings on the vehicle — a yellow number outlined in black, wide national crosses on the side of the combat compartment and on top of the engine deck, as well as the license plate number "WH 822610".

Another Pz.Kpfw. III, this time an Ausf. G from the early series, with the old type of cupola, but with an MG15 installed for anti-aircraft duty. Unlike tank number "531", this one is devoid of the additional 30mm armor on the hull and superstructure frontal plates. Notice that the tank was hit by a round in the left side of the hull, which ignited a fire. In the background is another knocked-out Pz.Kpfw. III.

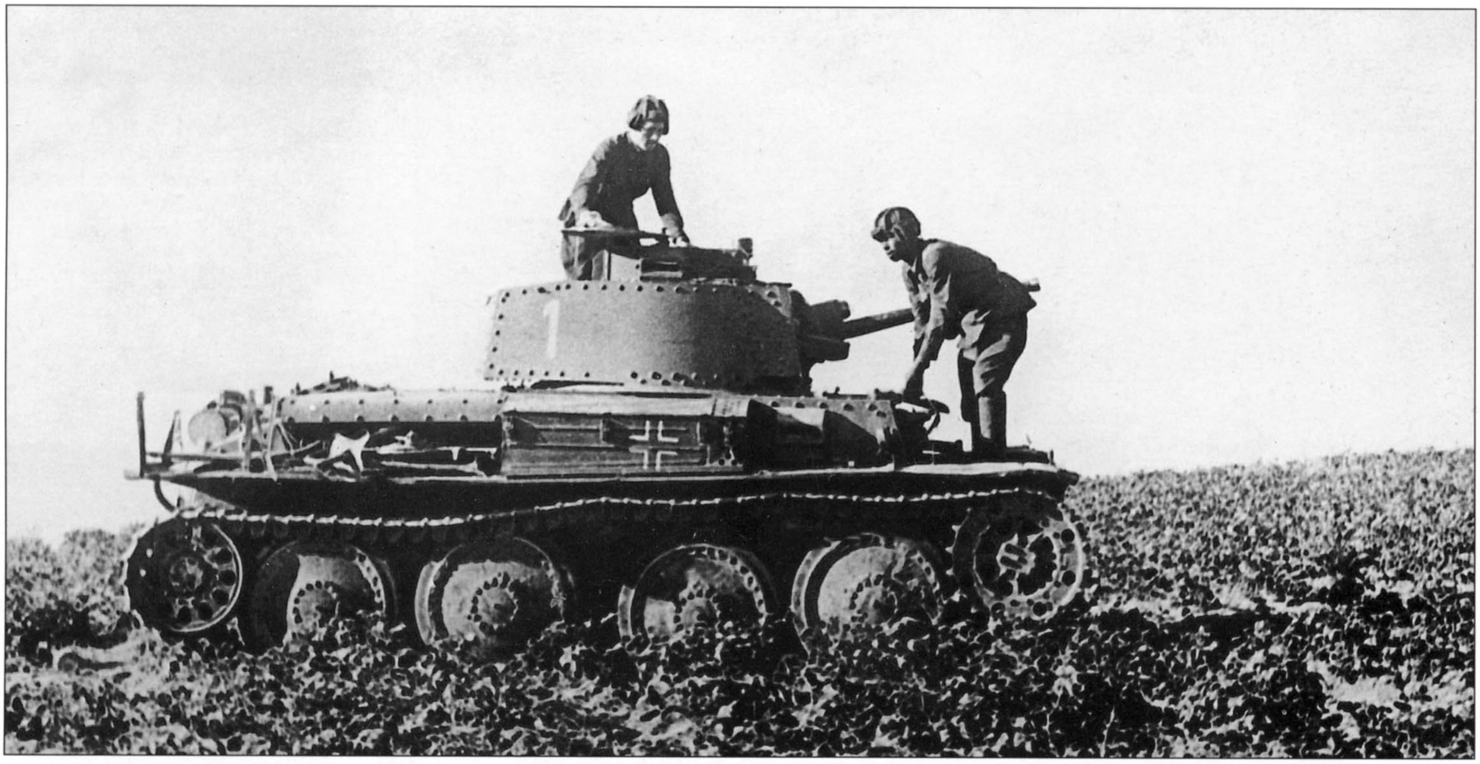




The same Pz.Kpfw. III tank photographed from the other side. This vehicle has a smaller tactical number “532” painted in red with a white outline. Note the damage to the stowage box — it shows where a round tore through then ripped off part of the door of the turret’s hatch.

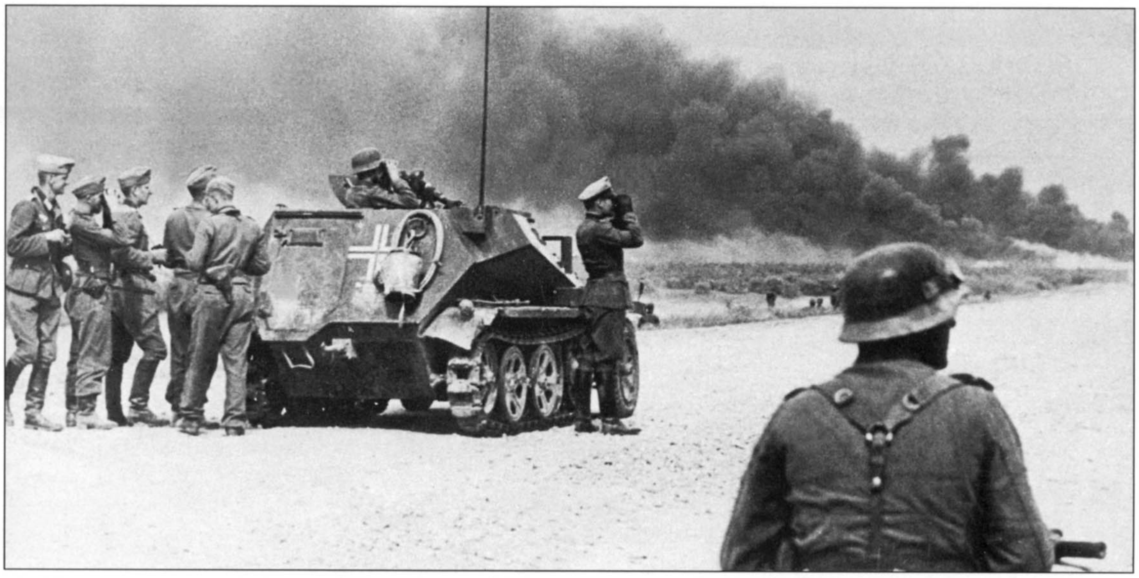


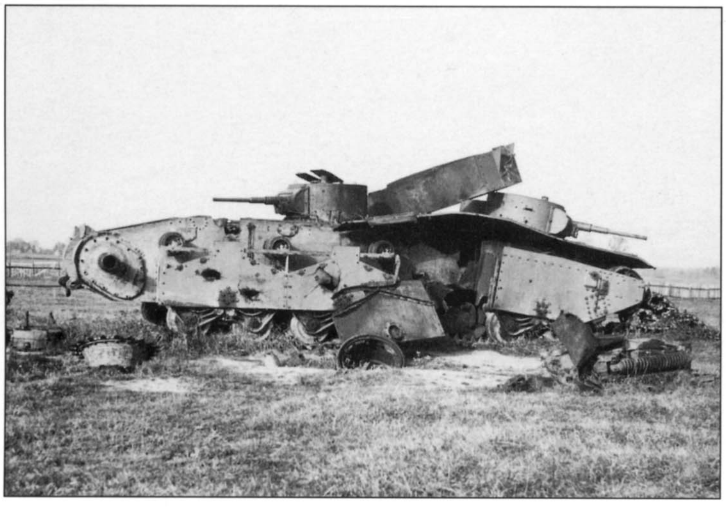
Another group of German tanks captured by the Soviets. These two Pz.Kpfw. 38(t)s and the Pz.Kpfw. II, which belonged to 7.Panzer-Division, were lost during the long, stubborn battle at the Smolensk-Moscow highway near Yartsevo in July 1941. Note the markings on the Pz.Kpfw. 38(t) at the left and the Pz.Kpfw. II at the right — they have numbers of only two digits painted in red with a white outline. The previous number of the second Pz.Kpfw. 38(t) was probably painted over. General Hermann Hoth’s Panzergruppe 3 tried to finish off the Soviet troops northeast of Smolensk, but its most advanced division was stopped and counterattacked by strong enemy forces in the Yartsevo area. The fighting for Yartsevo lasted for seven days, and the town was taken and re-taken two or three times a day by the opposing forces.



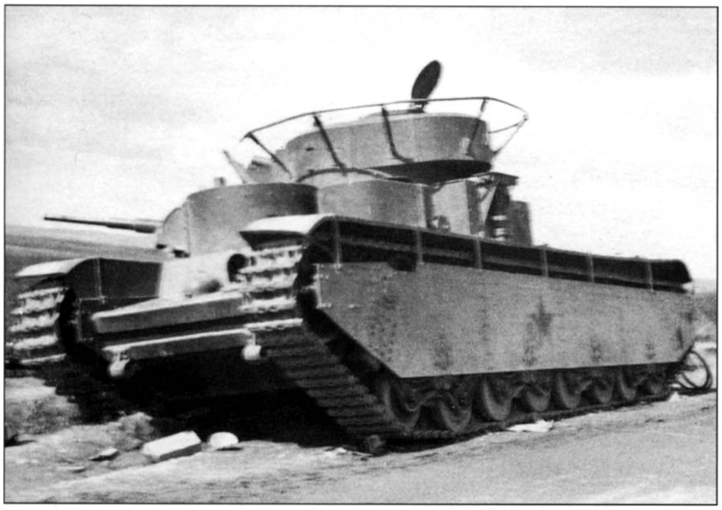
Another Pz.Kpfw. 38(t) abandoned in the Yartsevo area is inspected by members of a Soviet tank crew. The only serviceable tank captured there, it was later used by the Soviets. Note the one-digit number painted in white or yellow. The German forces at the battlefield of Yartsevo were represented by 7.Panzer-Division, while the Soviets were represented by the 69th, 101st and 110th Tank Divisions, and also by a group of 3,000 infantry and 300 different guns, which defended the town.

This Sd.Kfz. 253 light armored observation post from 666.StuG.Abt. was photographed during the fighting for Novgorod in August 1941. Like the Sd.Kfz. 252 ammunition carrier, the Sd.Kfz. 253 was based on a concept that lead to the creation of the Sd.Kfz. 250 family of armored personnel carriers. Just like the Sd.Kfz. 252, the Sd.Kfz. 253 was also originally intended for StuG units. Note the unit emblem painted on the rear doors of the vehicle.

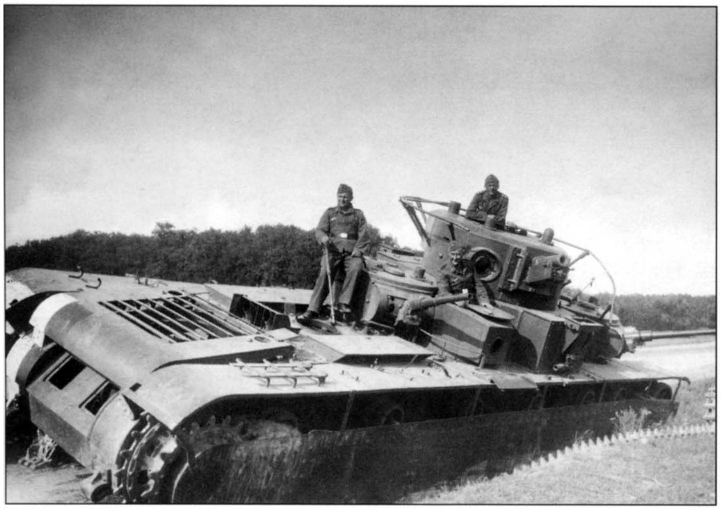




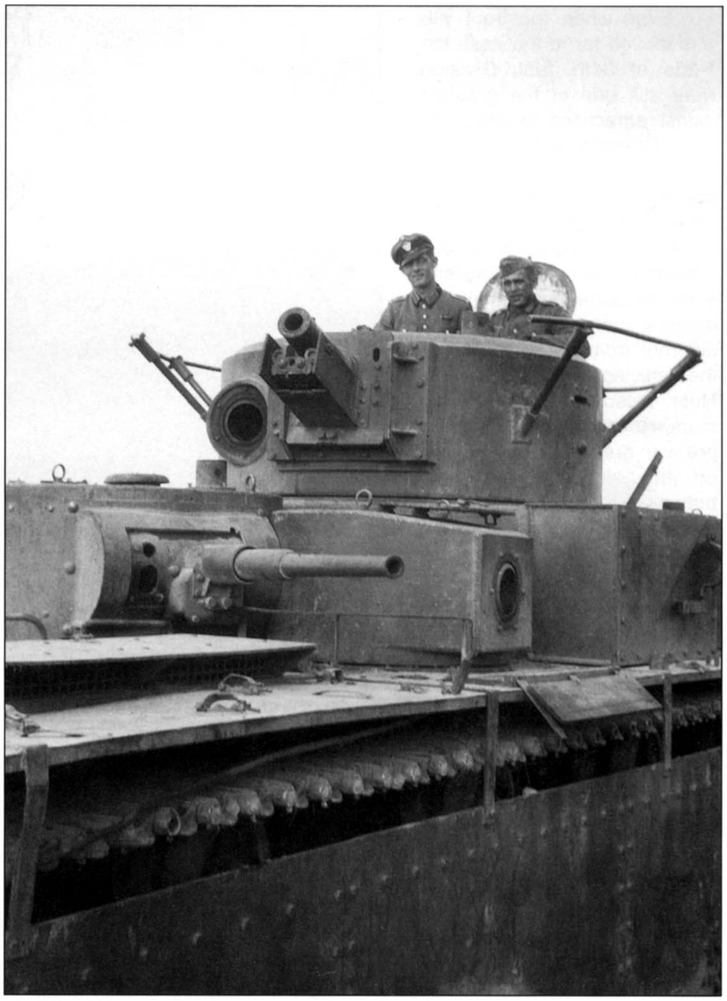
Although only 59 pieces of the T-35 heavy tank were produced, it was the most famous tank of the summer season of 1941, especially to the German soldiers serving in the rear, who were impressed by the huge size of this vehicle. During the beginning of "Barbarossa", almost all the T-35 monsters (there were 48 of them operational in western Ukraine) were used by 34th Tank Division from 8th Mechanized Corps, which was involved in the great armored battle in Ukraine. One of the regiments in this division, the 67th Tank Regiment commanded by M.D. Bolkhovitin, suffered heavy losses from air assaults on the first day of war and was almost completely wiped out. The first three T-35s were damaged by aircraft and blocked a road. Other tanks that tried to avoid them were lost in just a few minutes due to mechanical breakdowns in the fields near the road or in roadside ditches. This T-35 was destroyed by one of the Luftwaffe's bombs.



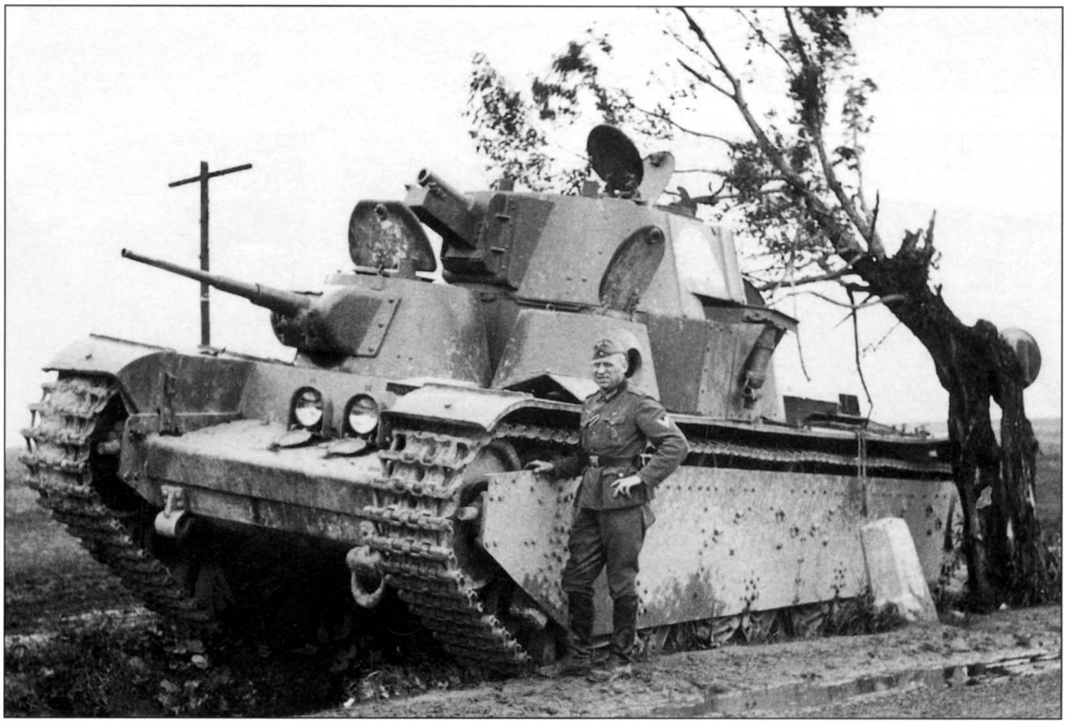
A T-35 from the 1934-1937 production series, which is equipped with a frame antenna, lies abandoned in a ditch. Note the Soviet red star on the side of the armor.



Another T-35 of 34th Tank Division that ended up in a ditch following a mechanical breakdown. Note the details visible on the deck. The Germans painted the white road markings for the safety of their drivers who were driving at night. They also removed the track, which was probably used to up-armor their tanks.

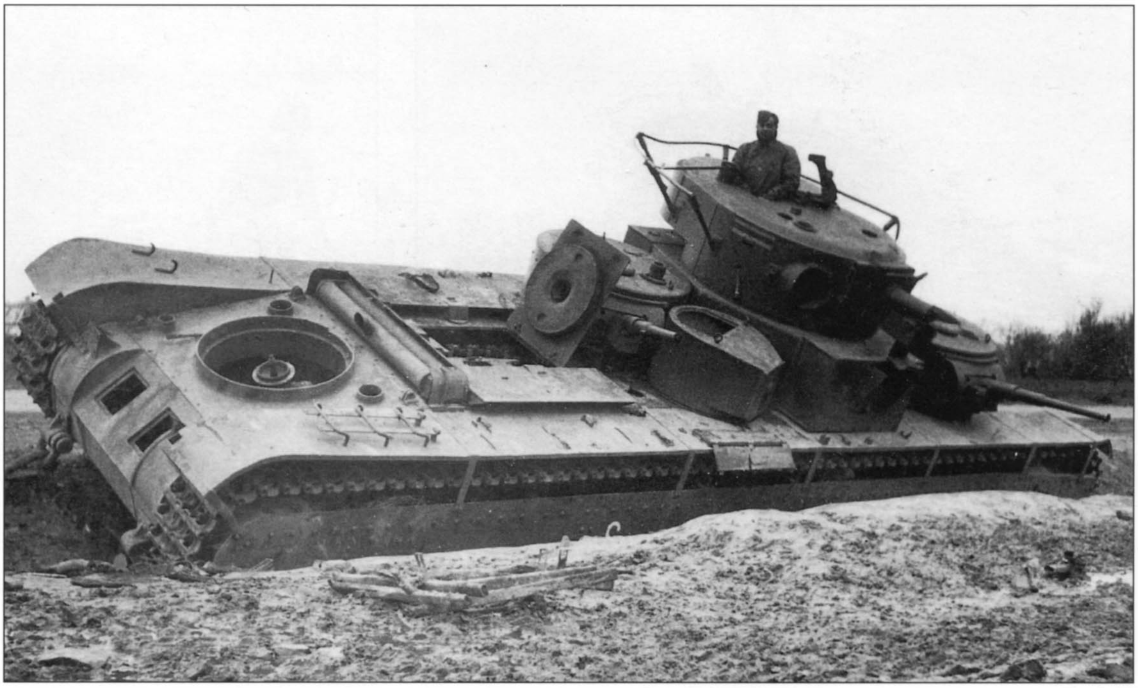


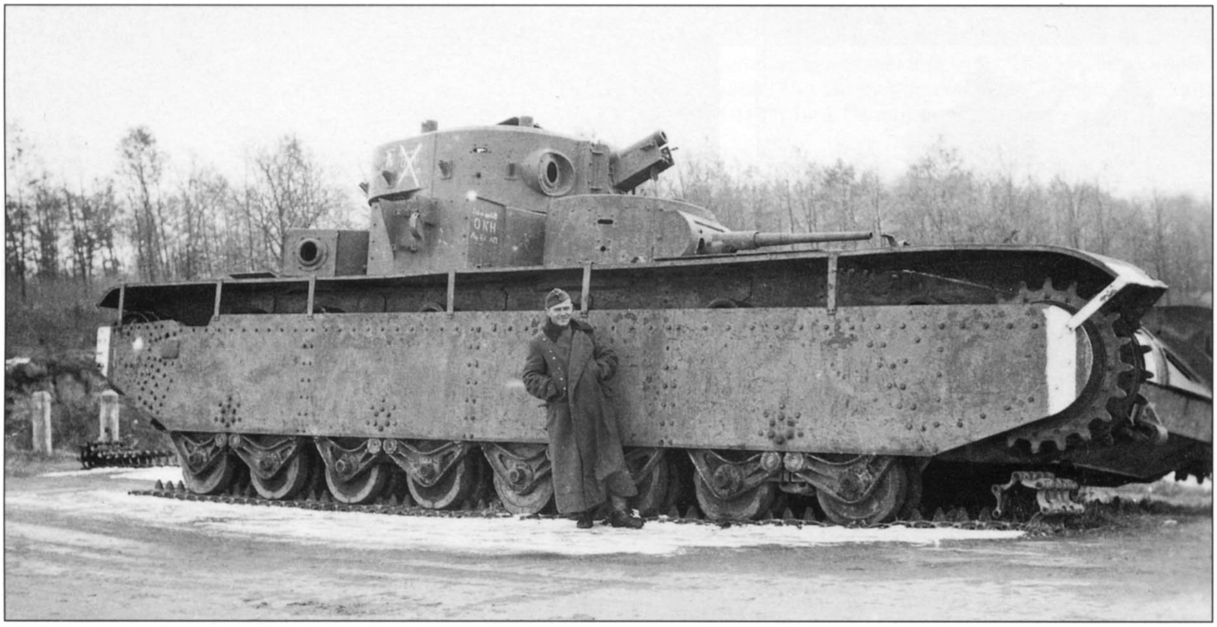
Close-up view of a T-35 tank with its German captors posing in the main turret. Note that the tracks are still on the vehicle. Just visible at the bottom right-hand corner of the photo is the red star national insignia. Note the many details of the turret construction.



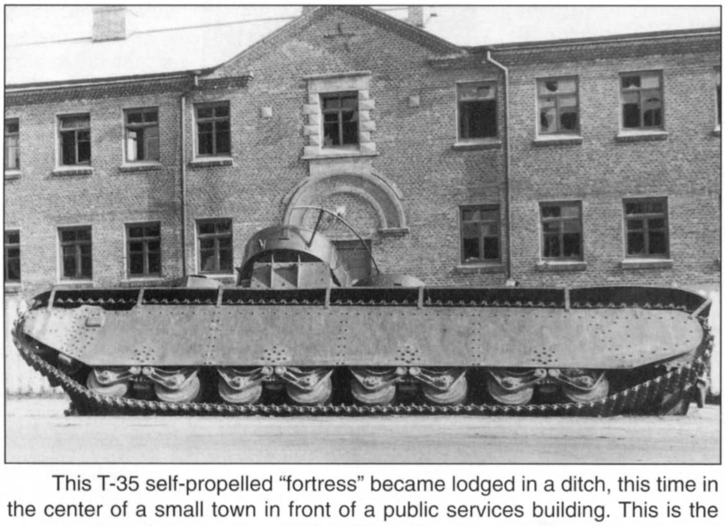
This T-35 from the 1938 production series (which produced 11 vehicles in all) suffered damage while crossing a ditch. Note the unit markings on the side of the main turret and the pattern of rivets on the hull armor.

Even when the front line was moved far to the east, the T-35s of 34th Tank Division were still one of the greatest tourist attractions in the Lvov area. Posing in the main turret of a command T-35 from the earliest series produced in the 1934-1935 period is only one of dozens of tourists. Of special interest is the exhaust system, seen uncovered just behind the driver's compartment. It is different from the one used in the vehicles of the later series. Note also the minimized markings based on those of the pre-war era, which are visible on the side of the turret between the machine gun mantlet and the first pole on the radio aerial. There are two other known T-35s that carried the same markings, and the T-35 that was tested at Kummersdorf also had these markings.

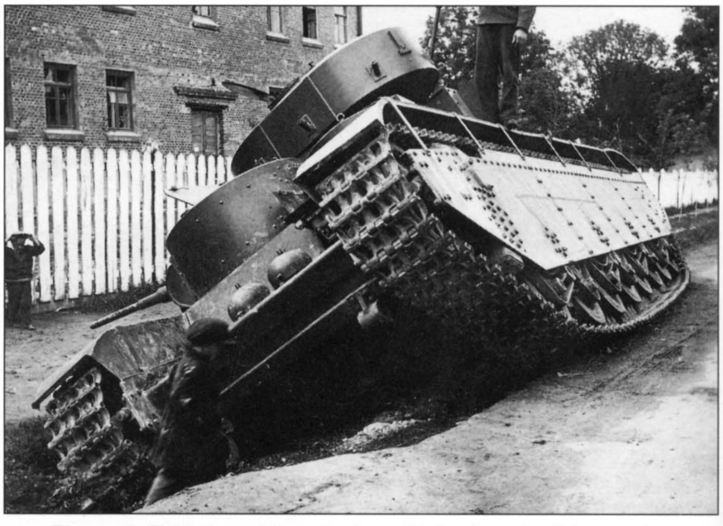




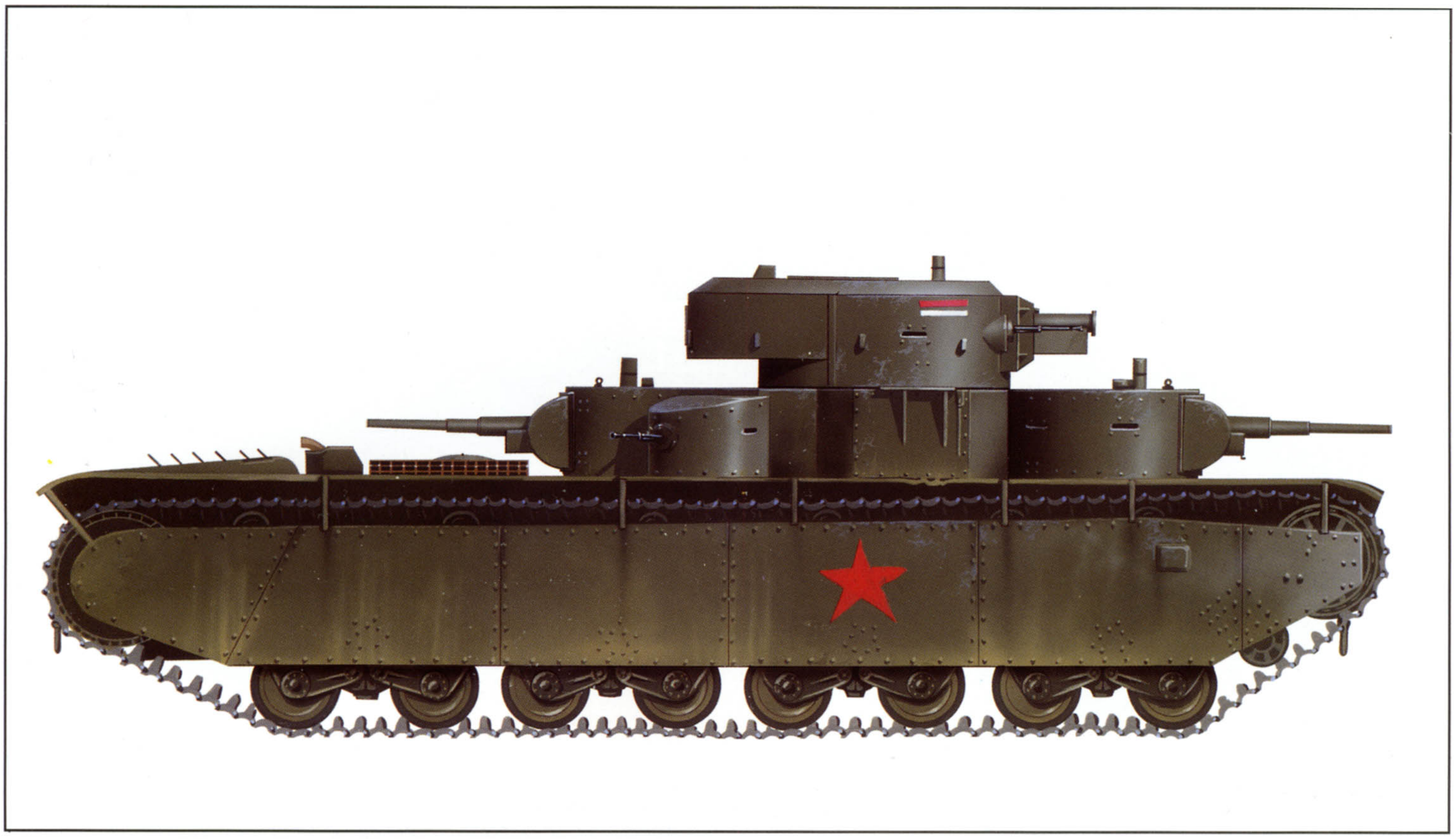
This T-35 was a hit with the tourists in the winter 1941/42 season. The largest section of track was "borrowed" by the German tank crews. Again, road markings have been painted for traffic safety. Note the inscriptions painted on the main turret and superstructure.



This T-35 self-propelled "fortress" became lodged in a ditch, this time in the center of a small town in front of a public services building. This is the command version from the 1936-1937 series. The massive dimensions of this tank, a length of almost 10 meters (12 yards), is shown well here. For some unknown reason all the turrets are turned in the direction of the ditch.

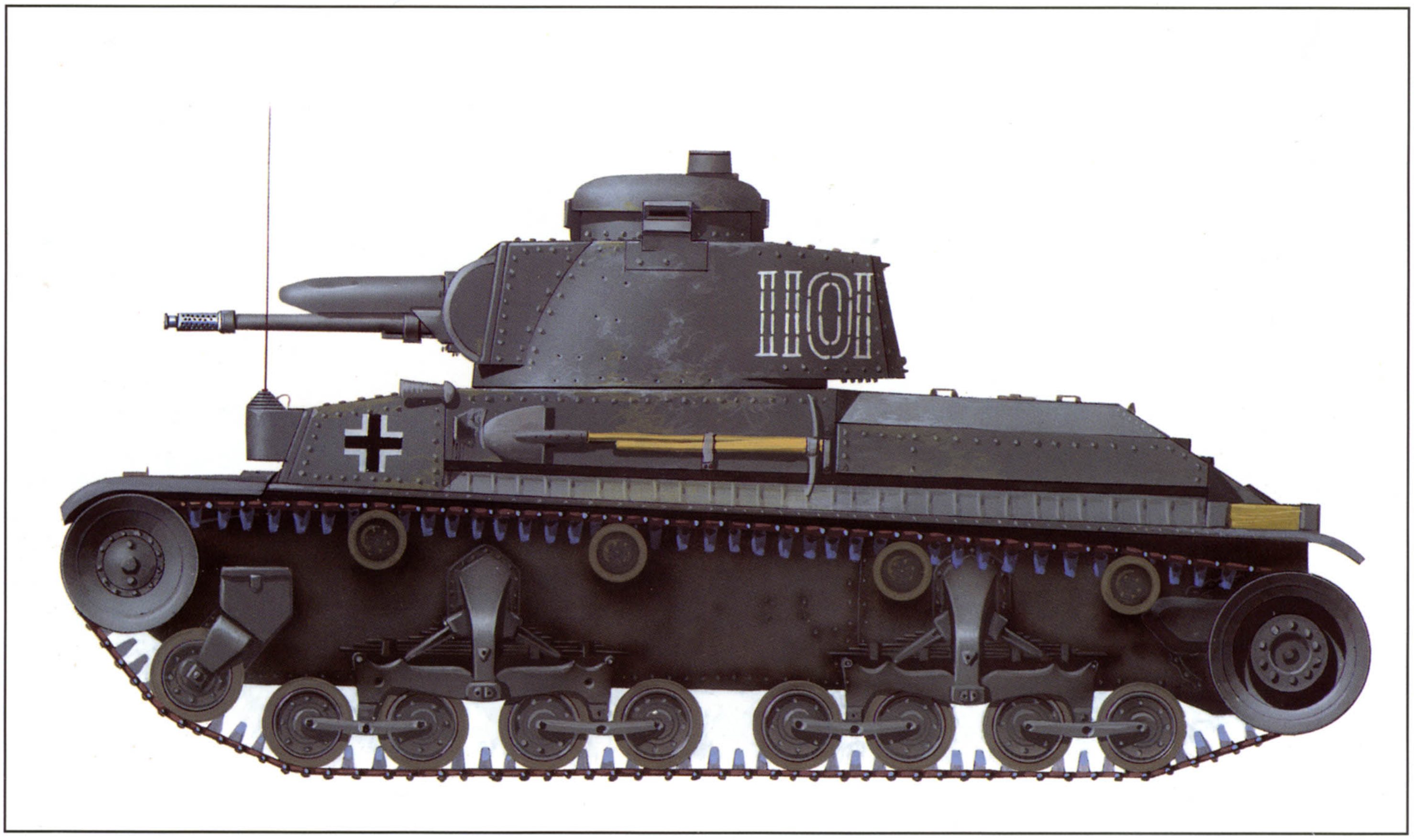


The same T-35 viewed from the front. Notice how the lights are lowered to combat position. There are known photos showing no fewer than 13 different T-35 tanks of 34th Tank Division abandoned on roads or in ditches.



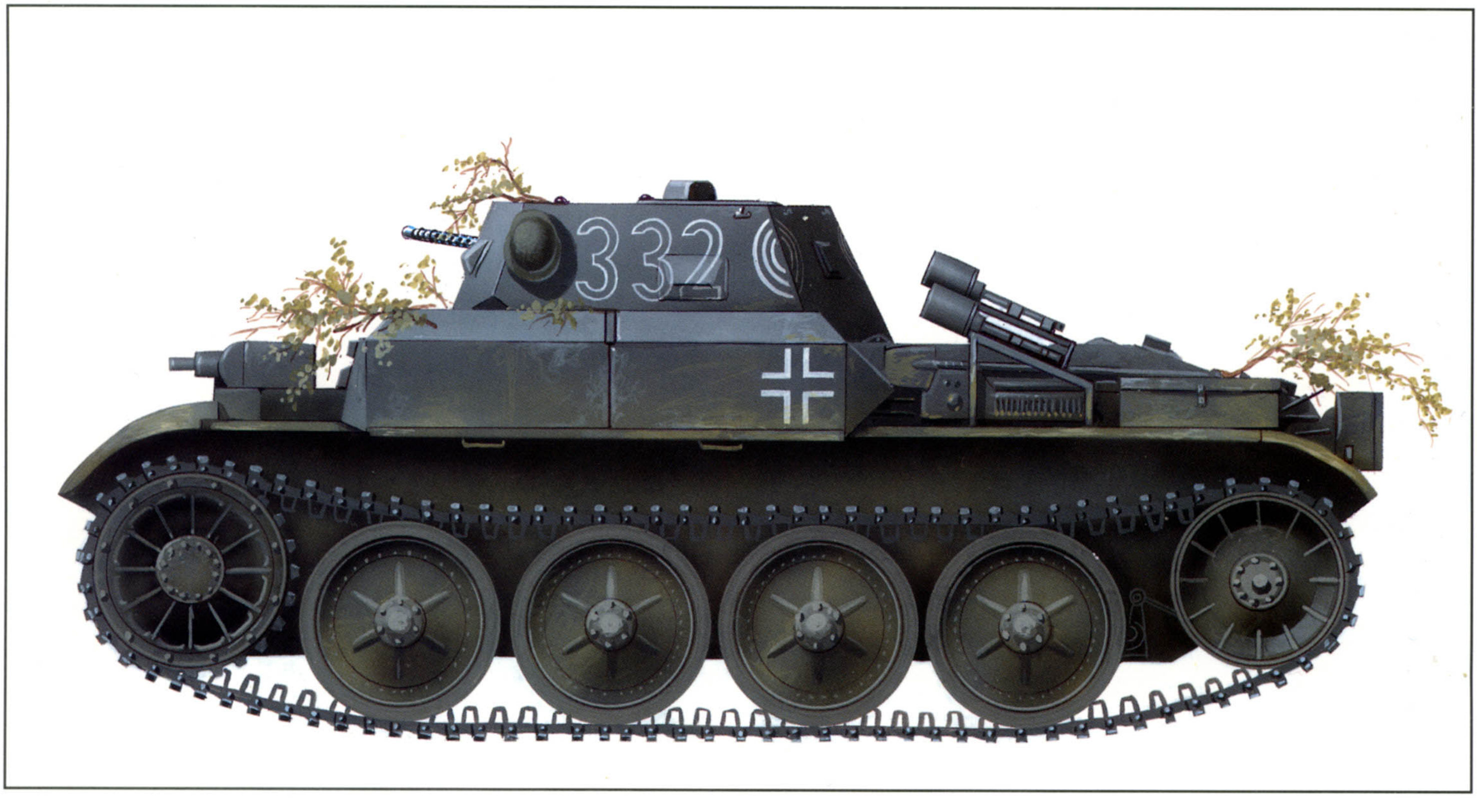
T-35 Model 1935, 34th Tank Division, 8th Mechanized Corps, southern sector of Eastern Front, July 1941

The T-35s were probably the only tanks in the Soviet Army during the summer of 1941 that carried the red stars on the side of the hull as a national marking. All of these vehicles were painted in the same way, i.e., with dark olive-green on all surfaces. Some of them still carried remains of the pre-war marking system, which indicated the battalions and companies within regiments. In this case, the tank has two small bars painted on the turret in red (top) and white (bottom), indicating 2nd Company of 1st Battalion.



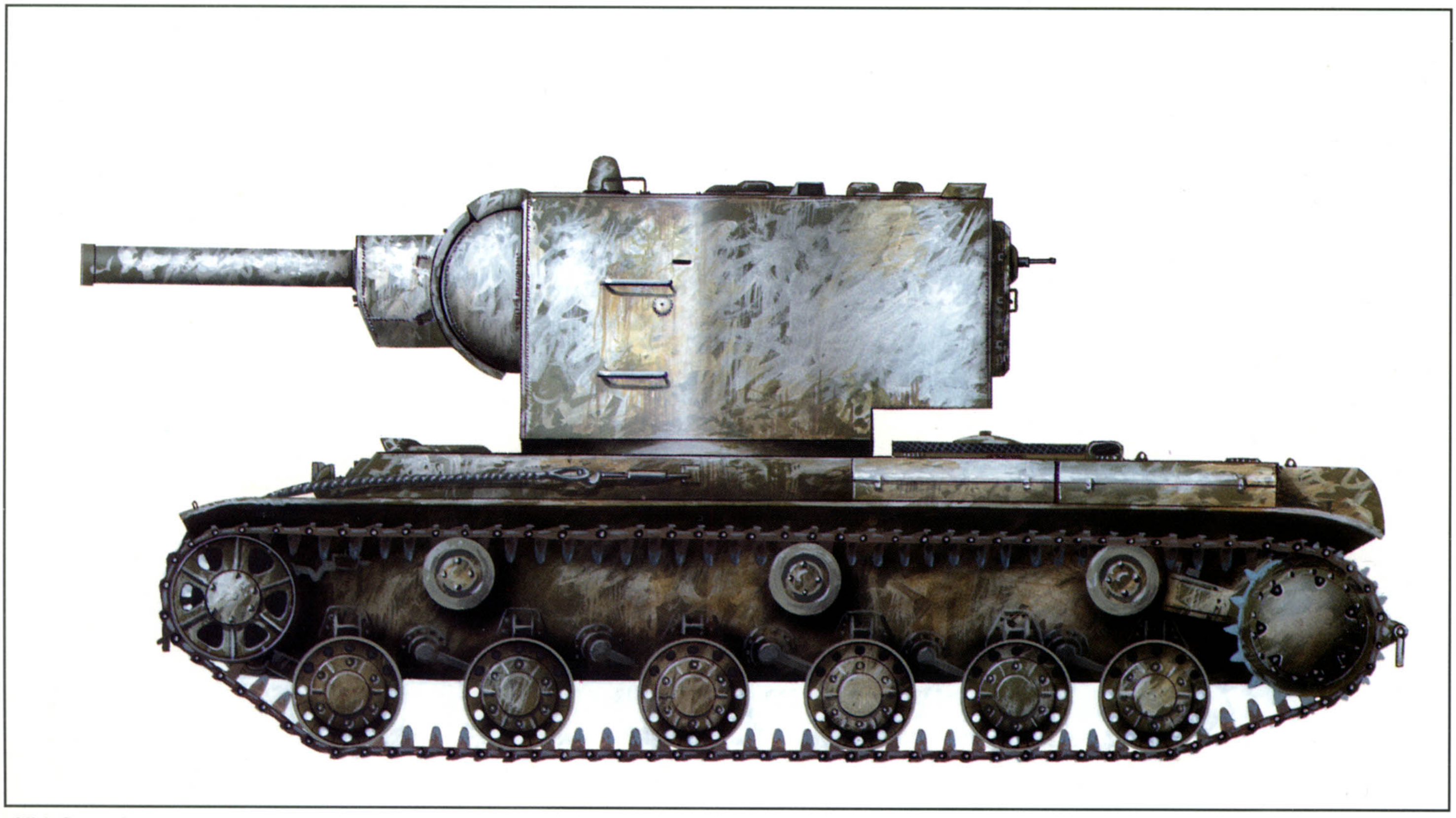
Pz.Kpfw. 35(t), staff company of II/Pz.Rgt.11, 6.Panzer-Divsion, Baltic states, summer 1941

The number "01" indicates that the vehicle belongs to the 2nd Abteilung (Roman letter "II") commander. The tactical markings were applied in white over the standard dark gray color of the German armored fighting vehicles throughout the first two and a half years of the war.



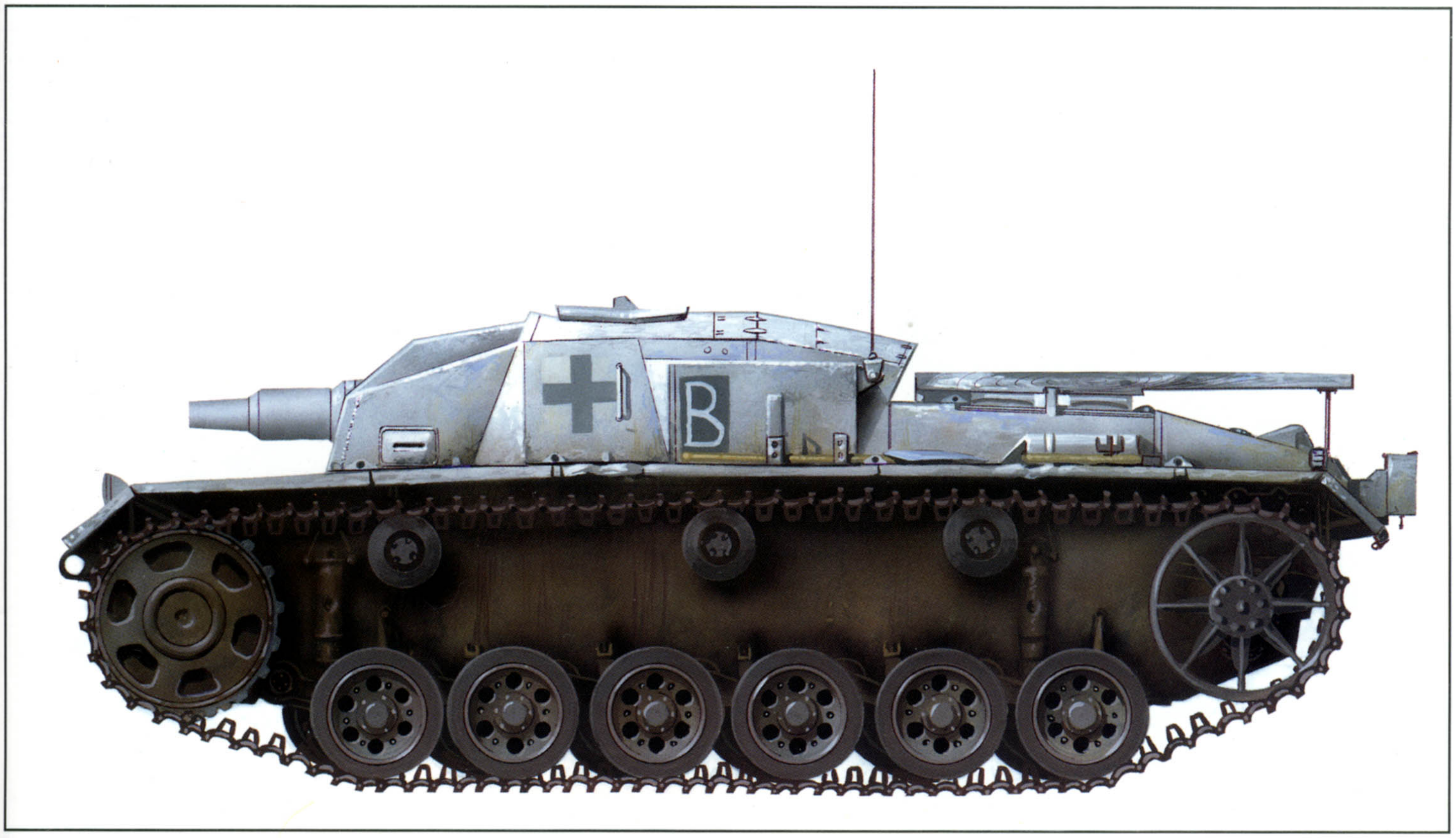
Pz.Kpfw. II (Fl), Pz.Abt.101, central sector of Eastern Front, late summer 1941

The Flammpanzer II was also known as the "Flamingo". The tank carried standard camouflage, markings and numbering. The camouflage, which was typical of German tanks during this period of the war, was composed of dark gray on all surfaces of the tank. Markings were composed of three concentric circles painted at the corners of the turret rear, which sometimes had the appearance of the ace of spades. The three-digit tactical number is a typical one that indicates a specific tank in a platoon of a company. There were four Flamm Pz.Abt. numbered 100-103, and all of them were used during Operation "Barbarossa", with Pz.Abt.100 and Pz.Abt.101 fielded in the central sector of the front.



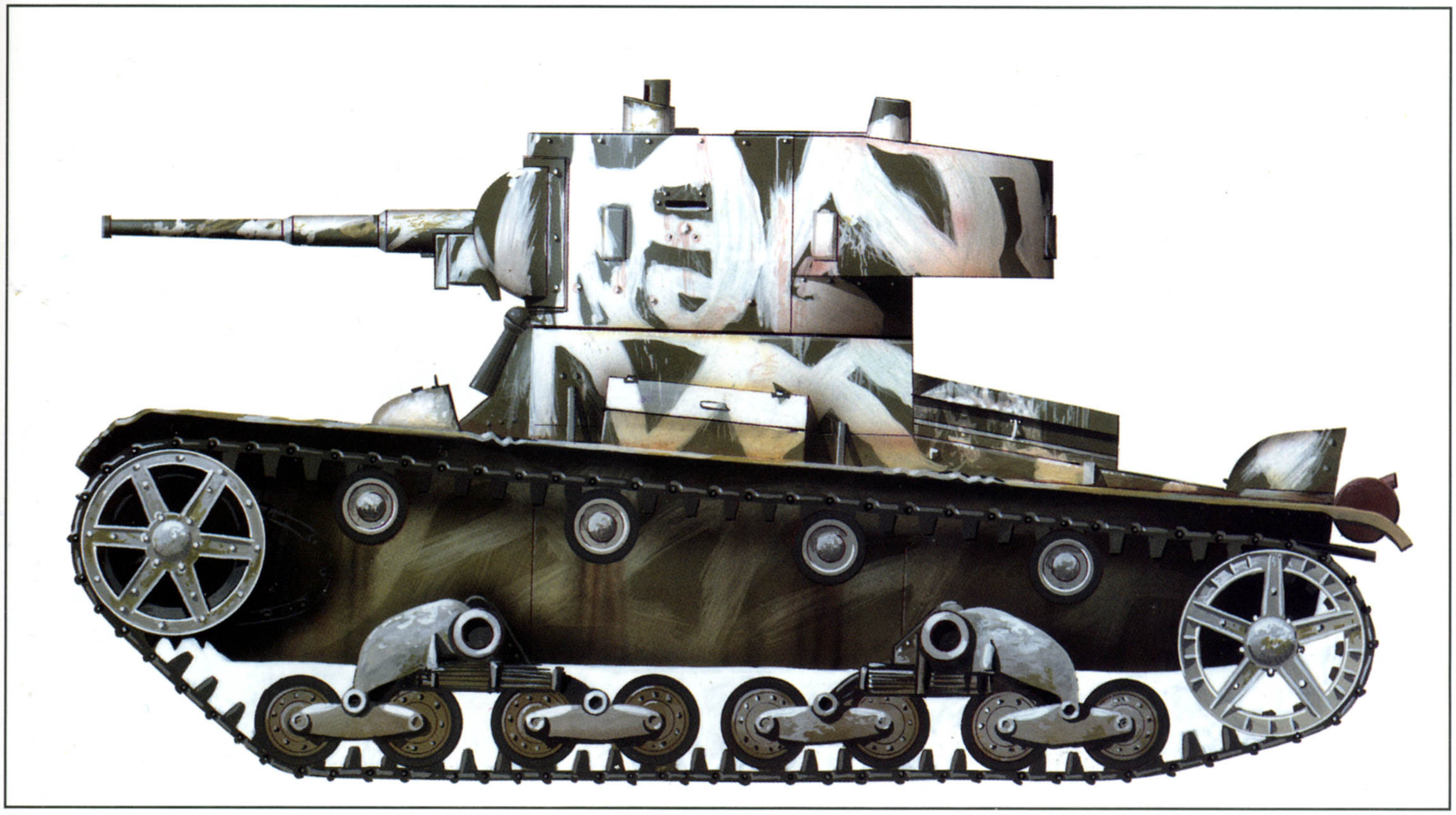
KV-2, unknown unit, Moscow area, late 1941

KV-2 tanks were used in several battalions in the opening phase of the German-Soviet war, and most of them were lost during the first two months of the conflict. A small number survived this period and experienced limited-scale combat in the final weeks of 1941, during the great battle for Moscow. One of these tanks, part of an unknown unit, is seen here. It carries very unusual camouflage for KV-2 tanks that is composed of a white coat of winter camouflage applied over the standard dark olive-green background. KV-2 tanks had no unit markings at all.



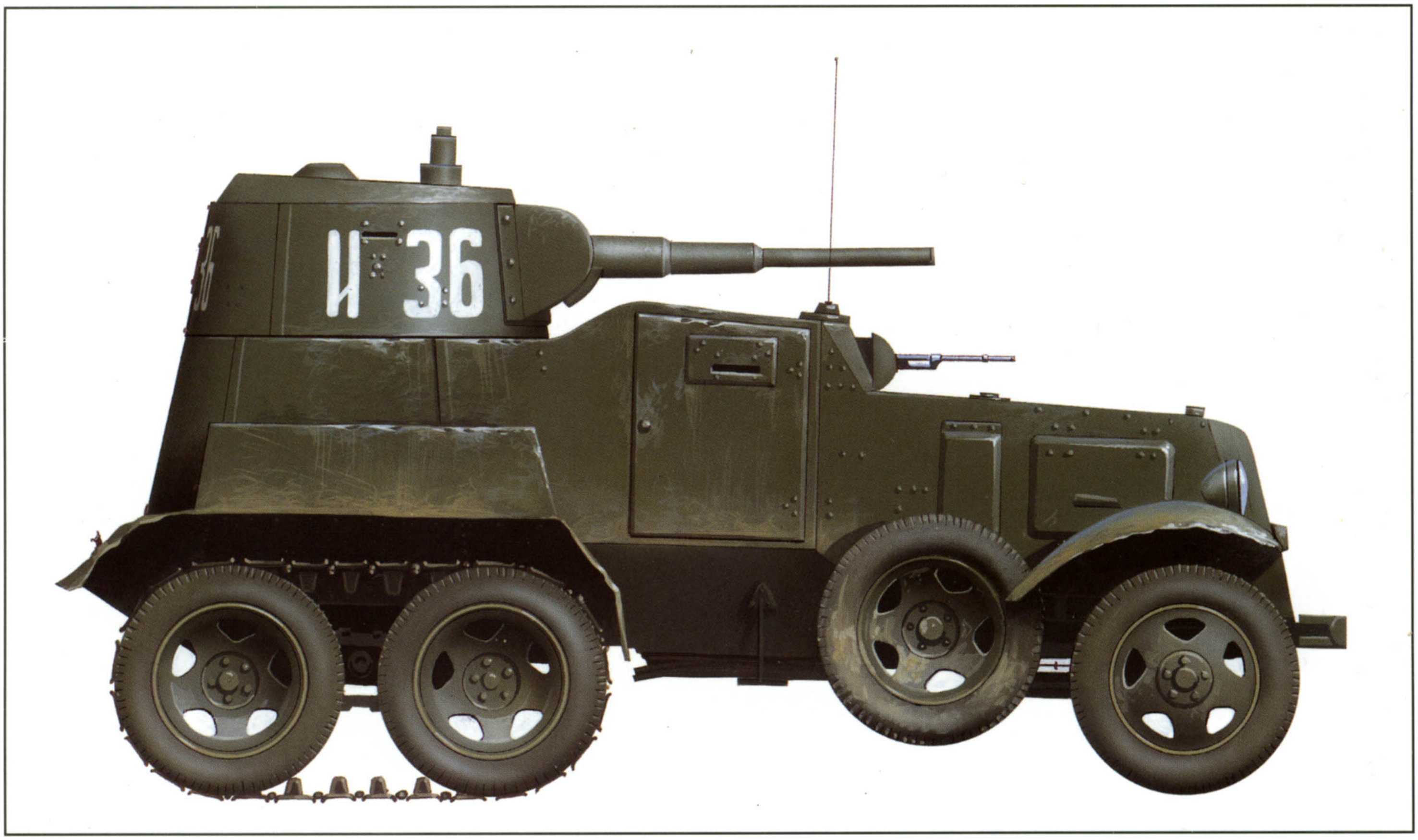
StuG III Ausf. C/D, 6.Panzer-Division, Sychevka, early 1942

A battery of StuGs was formed when all the tanks of the division were lost during the last weeks of 1941. This StuG has a white winter coat over a standard dark gray background. The national marking is painted over the white, while the individual letter of the vehicle -- "B"-- is isolated on a dark gray square. The sides of the hull and the undercarriage are still the basic gray color (though covered with dirt), while the frontal portions of the hull are painted white.



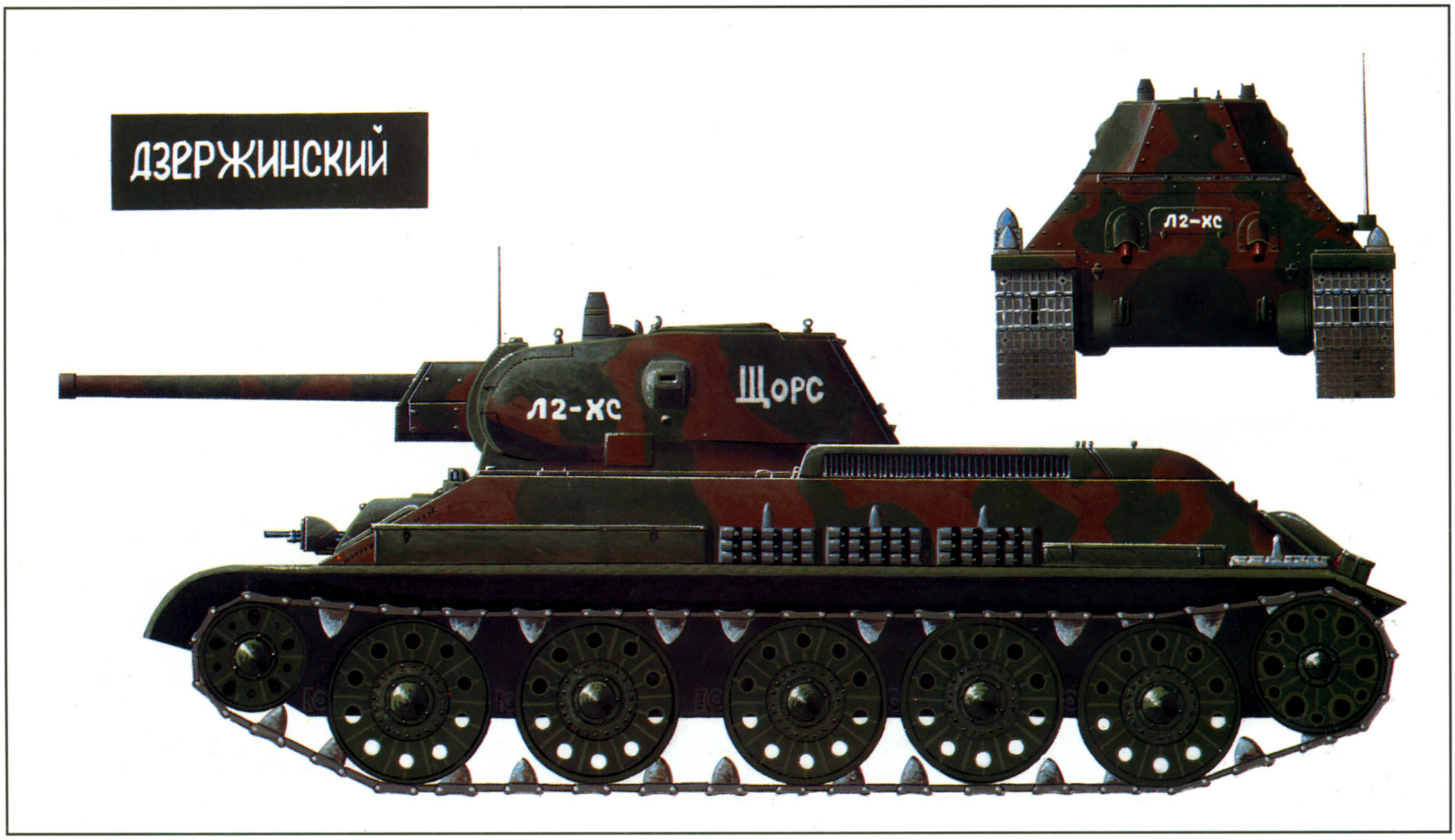
T-26 Model 1933, unknown unit, Leningrad Front, spring 1942

This T-26 was employed by the Soviets on the Leningrad Front during the fighting near the Neva river in the early spring of 1942. The Model 1933 was in production from 1933 to 1937, as were numerous variants of the T-26. This tank carries standard dark olive-green camouflage with a whitewash pattern for the winter season. White camouflage was applied to all sides of the upper part of the tank, as well as partly on the top surfaces. The turret top was painted entirely in white, the engine deck partly in white, while the glacis was covered with mud and sand.



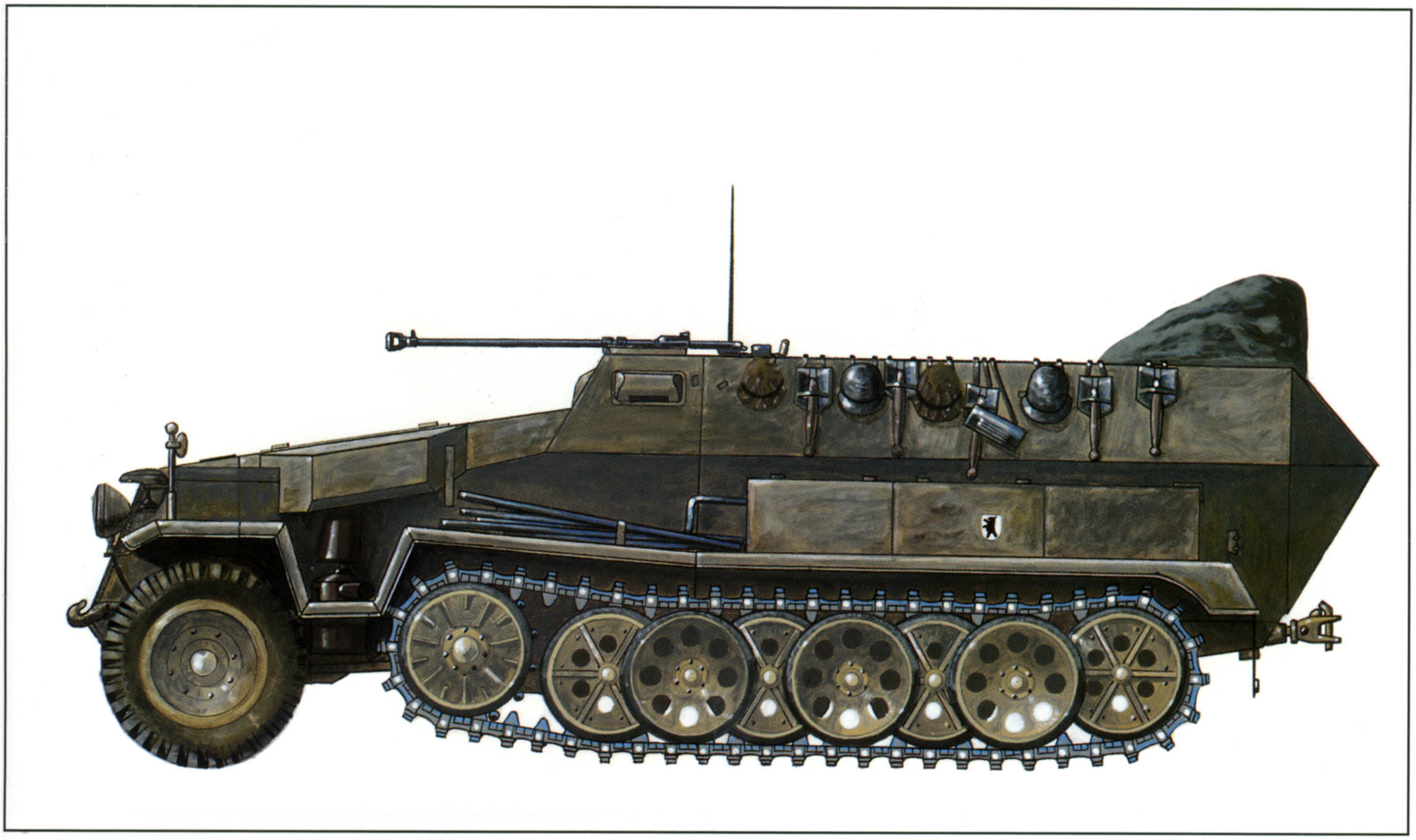
BA-10 heavy armored car, Leningrad Front, spring 1942

The BA-10 was the standard Soviet armored car, though the BA-6 and BA-20 were also used. Many BA-10s were transferred from the Far East to western Russia in the summer of 1941 to replace destroyed ones. This vehicle wears the standard camouflage of Soviet vehicles, with the code "I-36" painted in white. The meaning of this code is unknown, but it could be the unit code.



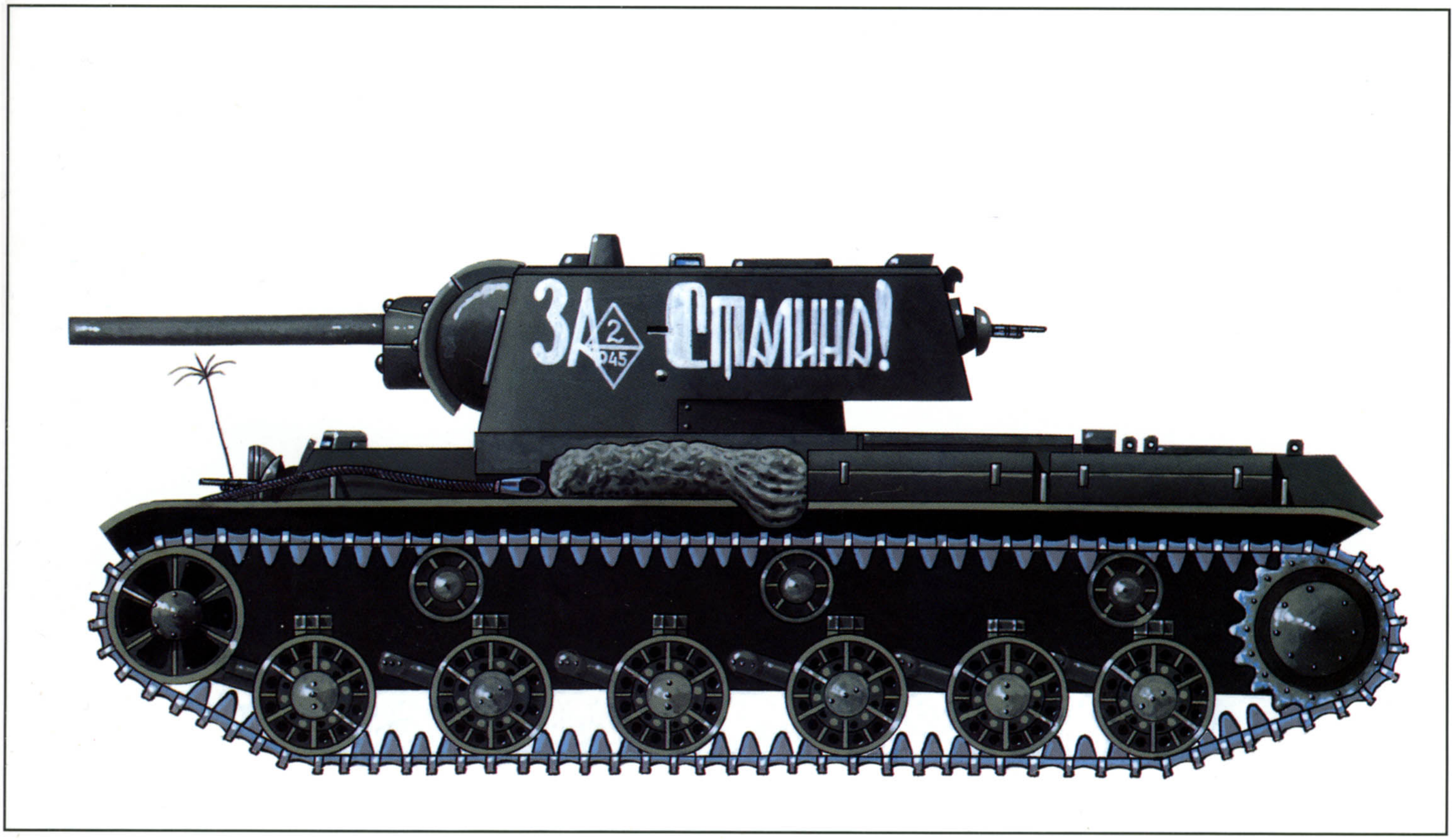
T-34 Model 1941, 4th Guards Tank Corps, South-West Front, May 1942

The unit code "L2-KhS" was painted in white on the glacis, rear plate and on both sides of the turret. The early cast turret is evident. The running gear uses the all-steel spoked wheels introduced in the spring of 1942. Each tank in this unit was named after a hero of the 1917 Bolshevik revolution (for example, Shtchors or Dzerzhinski) and wears a two-color camouflage of brown or dark earth over a dark olive-green background.



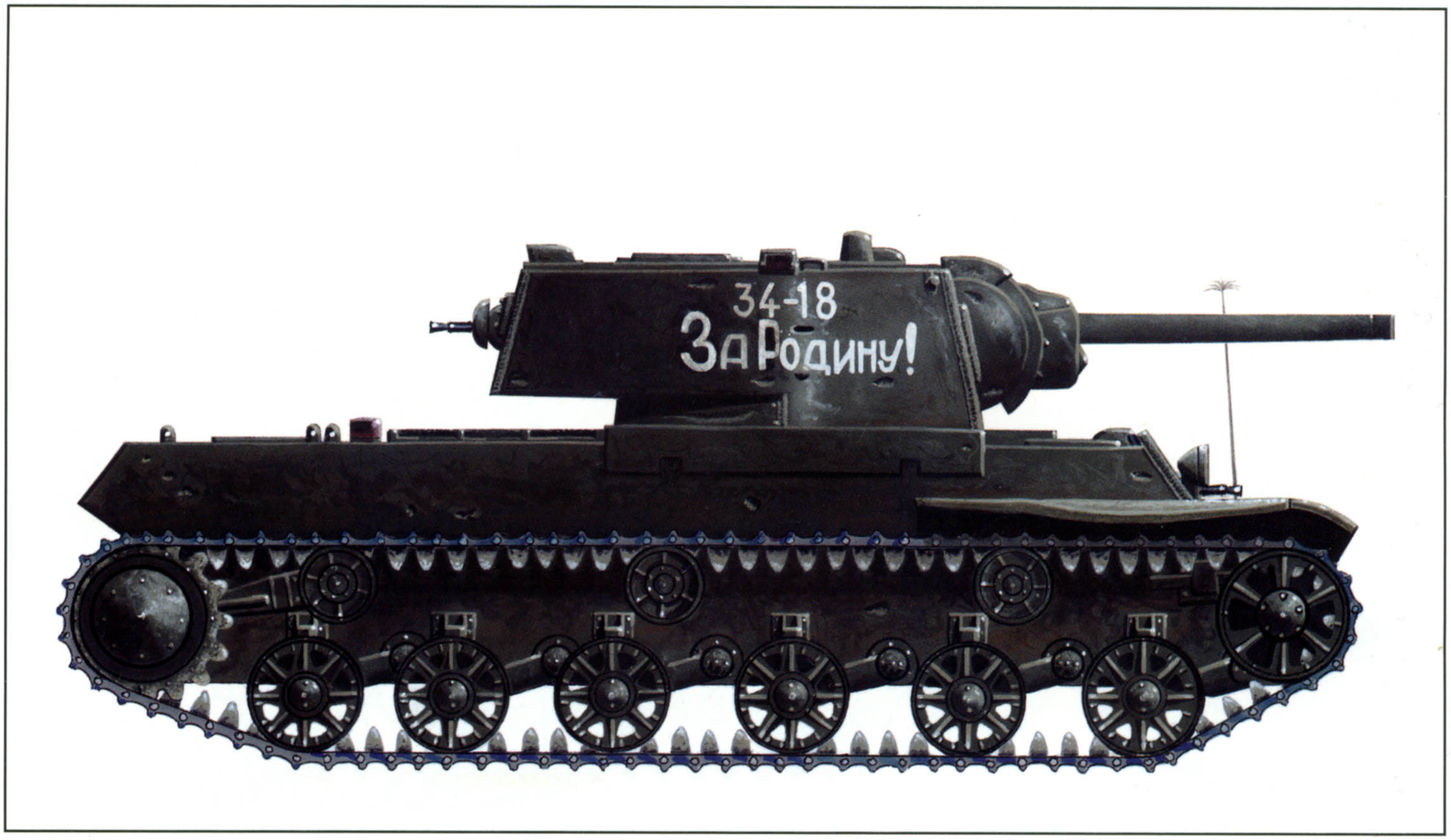
Sd.Kfz. 251/1 Ausf. C, 3.Panzer-Division, Caucasus, summer 1942

This half-track, which is painted in dark gray and covered with a heavy coat of dust, bears the divisional emblem of 3.Panzer-Division. It is armed with a captured Soviet anti-tank rifle. The crew's equipment hangs on the side of the vehicle. Two of the four helmets are fitted with cloth covers.



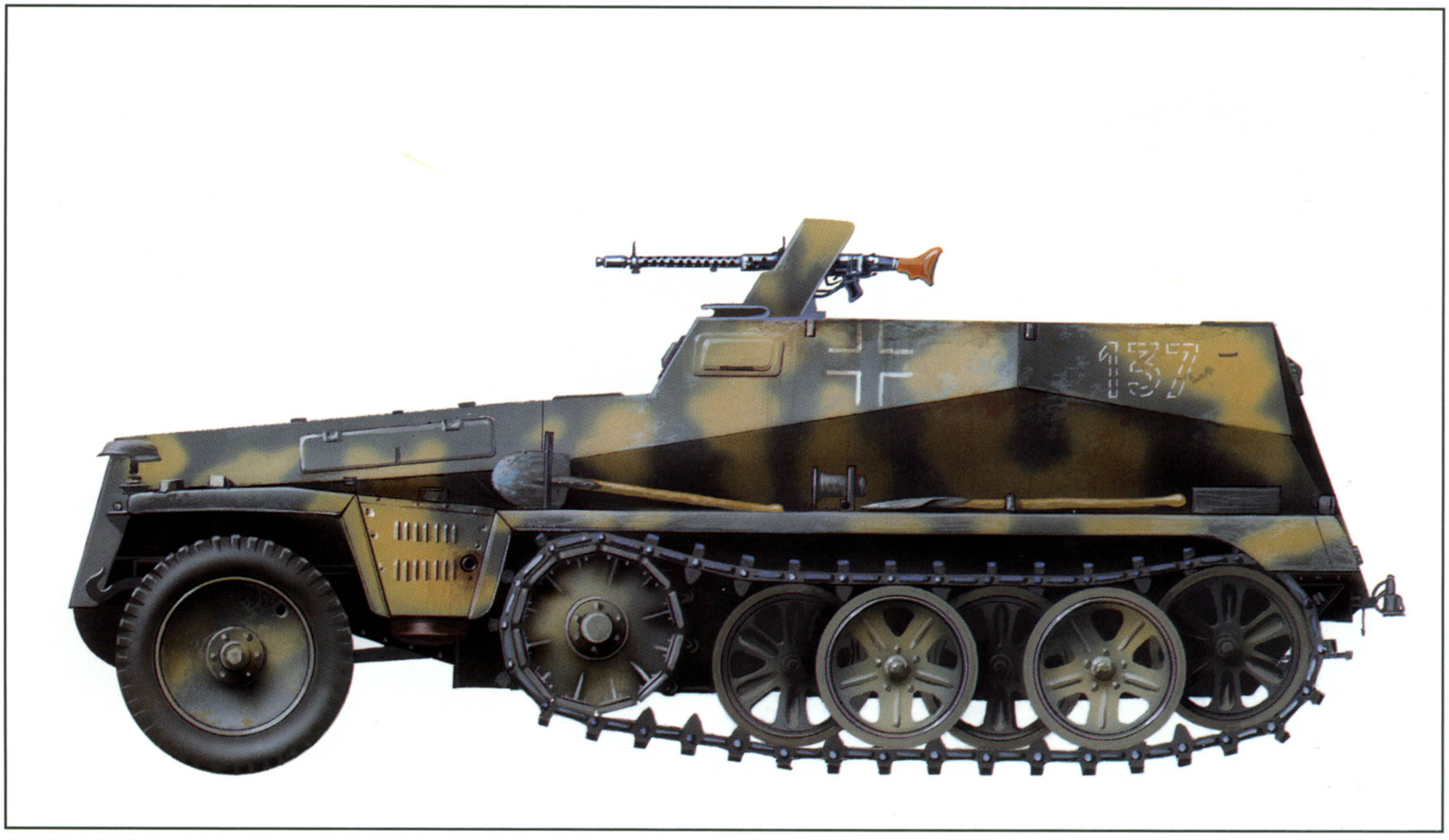
KV-1 Model 1941, 116th Tank Brigade, Voronezh Front, July 1942

The 116th Tank Brigade was formed in February-March 1942 and was sent to battle around Voronezh in July 1942. The turret on this vehicle is prominently marked with the patriotic slogan "For Stalin". The number "2" in the tactical marking indicates the second battalion of the brigade, the 324th Tank Battalion; the "045" is the brigade code number.



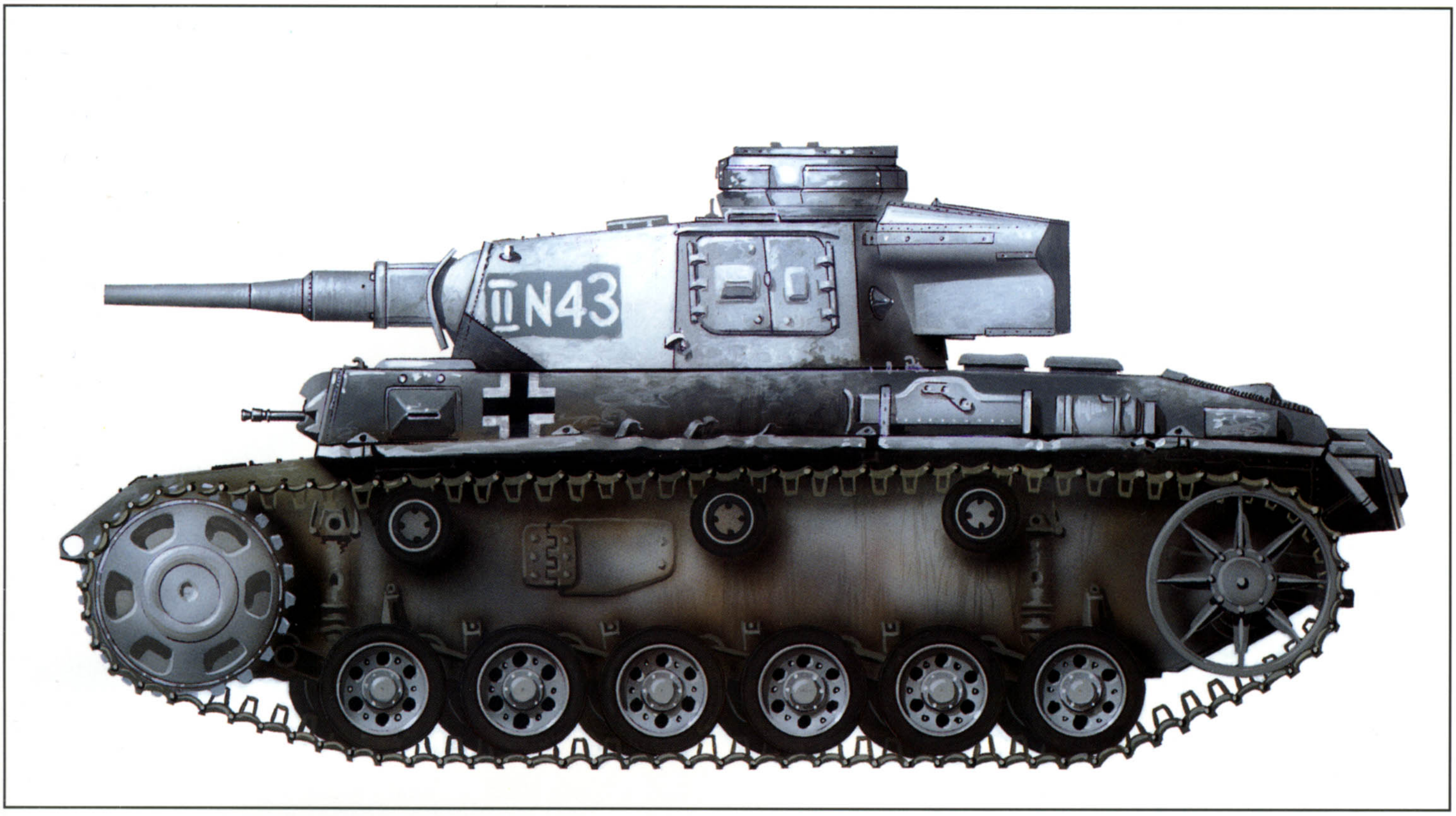
KV-1 Model 1941, unknown unit, Stalingrad, September 1942

This KV-1 heavy tank is painted in the standard camouflage color (dark olive-green) that was used throughout the war. On the up-armored welded turret are the unit markings, which consist of the unit code and the number of the battalion within the brigade, as well as the inscription "For the Homeland". The chassis and wheels of this formidable vehicle are different than those on the earlier model KV-1, as is the longer 76.2mm gun.



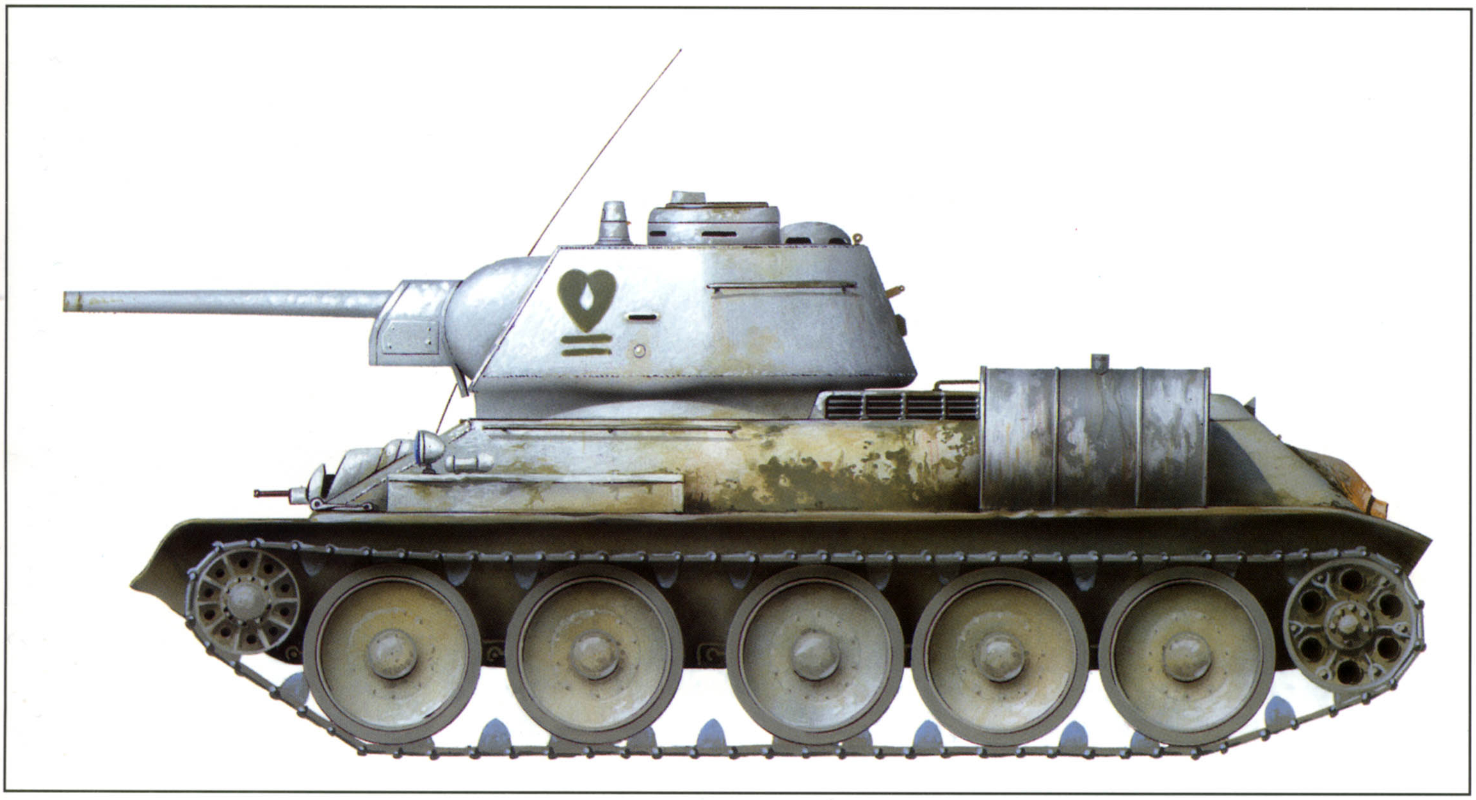
Sd.Kfz. 250/1, 16.Panzer-Division, southern sector of Eastern Front, autumn 1942

This Sd.Kfz. 250/1 wears the new type of camouflage introduced in the summer of 1942, when dark yellow and green paints first appeared in front line camouflage schemes. These colors helped to break up the outline of German vehicles painted totally in dark gray. The paint was usually applied with a brush without any strict regulations. The half-track is armed with the ubiquitous MG34.



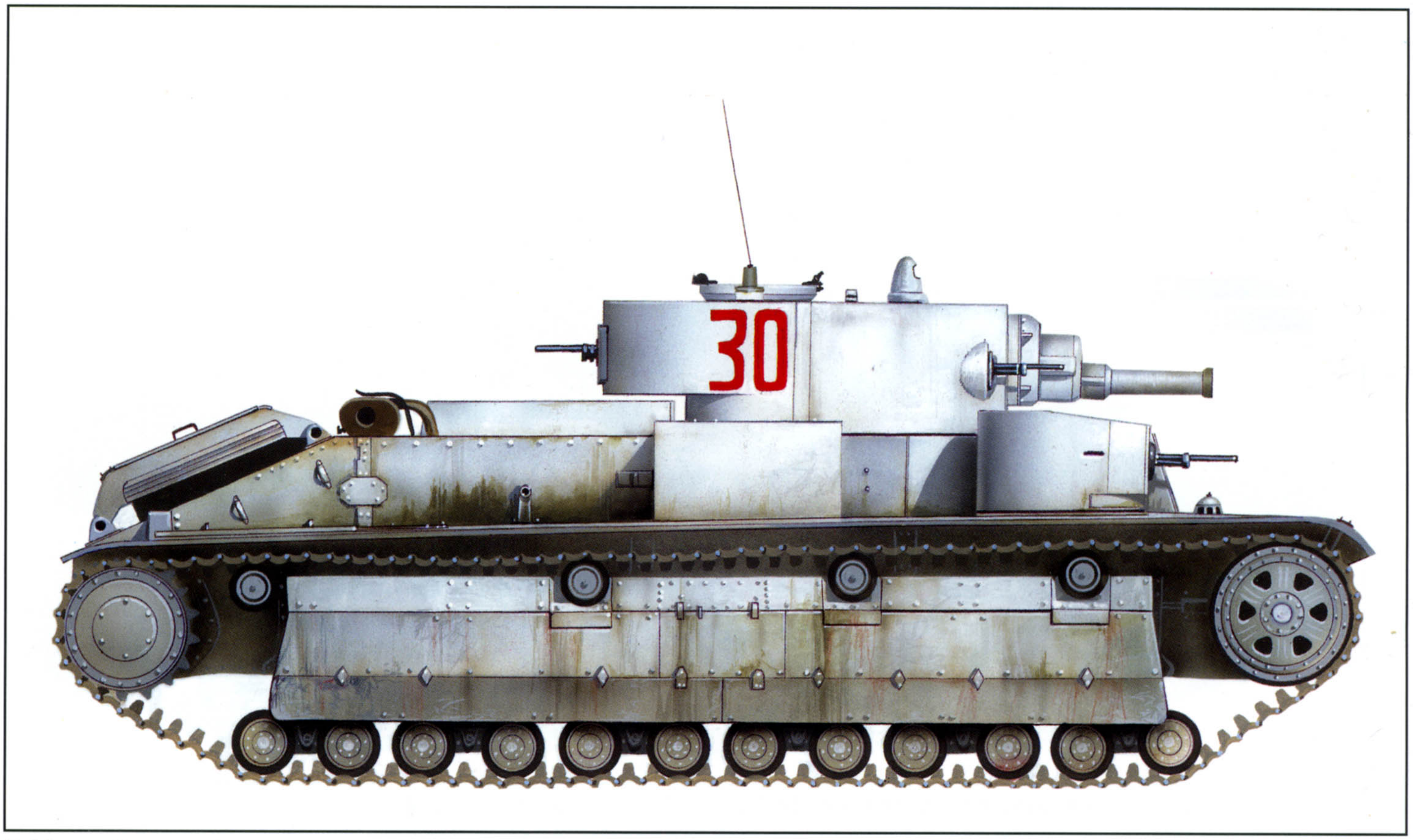
Pz.Kpfw. III Ausf. J, staff company of II.Abteilung, 16.Panzer-Division, winter 1942/43

This tank displays typical camouflage for this period, i.e., the dark gray background coated with a whitewash for the winter. The tactical markings on the tank are very unusual because no staff sub-unit could employ such a high number. The markings could indicate that this tank was incorporated into the staff company of 2nd battalion without a change being made in the previous numbering before the winter camouflage was added. The last digit in the number, which indicates a tank within a company, was painted larger than other two numbers. This style of marking was often seen on German tanks during the second half of 1942 in Russia, as well as in Africa.



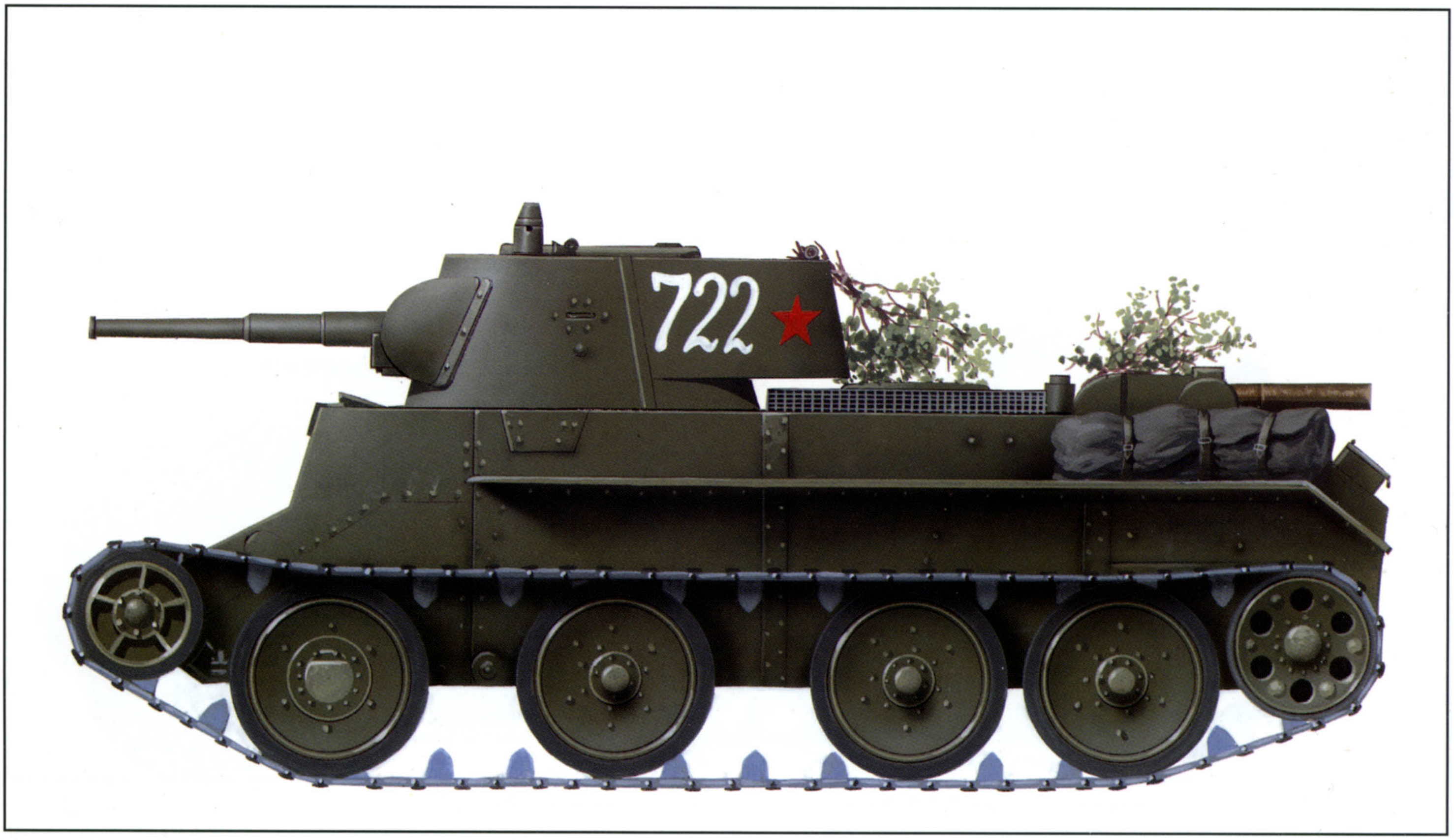
T-34 Model 1942, unknown unit, Upper Don area, Voronezh Front, winter 1942/43

This T-34, which is equipped with a new turret, is painted in the standard Soviet camouflage of dark olive-green on all the surfaces covered with a coat of white paint for the winter. The paint was not durable and was often rubbed off by troops being transported on the tank, leaving behind only remnants of the white camouflage on the surfaces that the soldiers were in contact with. A unit emblem is painted on the turret. Unusual by Soviet standards, it is composed of a heart with a diamond inside of it, with two bars located underneath, probably indicating a sub-unit within a tank brigade. The colors of this emblem are most likely dark olive-green and white, the standard camouflage paint colors.



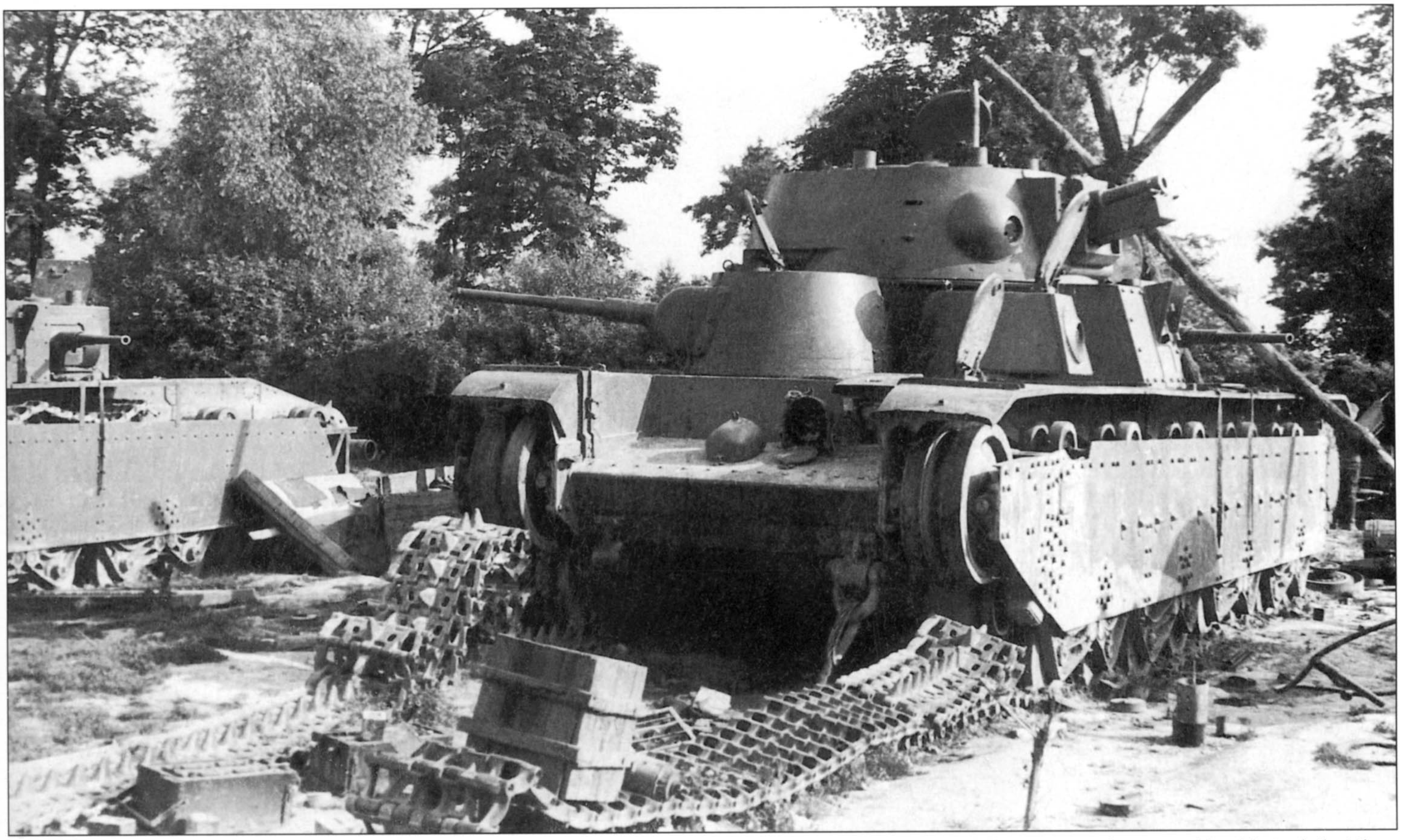
T-28 medium tank, unknown unit, Leningrad Front, winter 1942/1943

This T-28 carries a heavy coat of winter camouflage applied over the standard dark olive-green paint. The two-digit number in red could indicate a unit code rather than being the standard tank numbering for a small-scale armored unit. Despite the multitude of weapons carried by this tank, it was not much of a threat to the German forces it opposed.

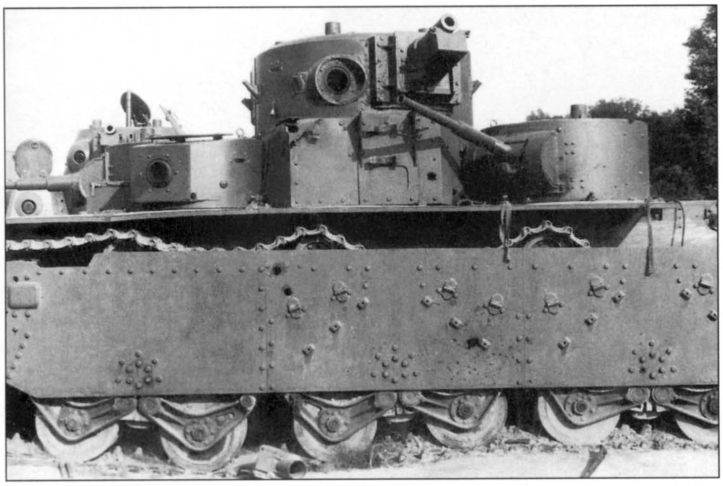


BT-7, 51st Independent Tank Battalion, Leningrad Front, early 1943

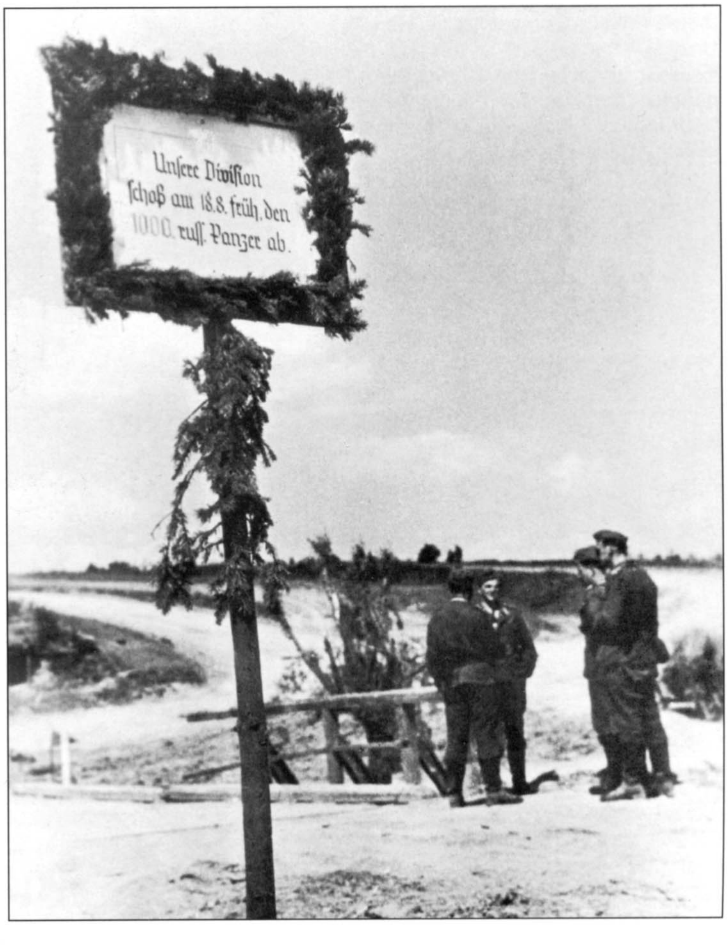
Prior to the January 1943 actions, this unit was incorporated into 220th Tank Brigade under the command of Col. V.L. Procenko. The tank is painted in the standard base color, but the markings are not at all typical ones. The Soviets applied a three-digit tactical marking starting with the high number "7", which could be the battalion code.



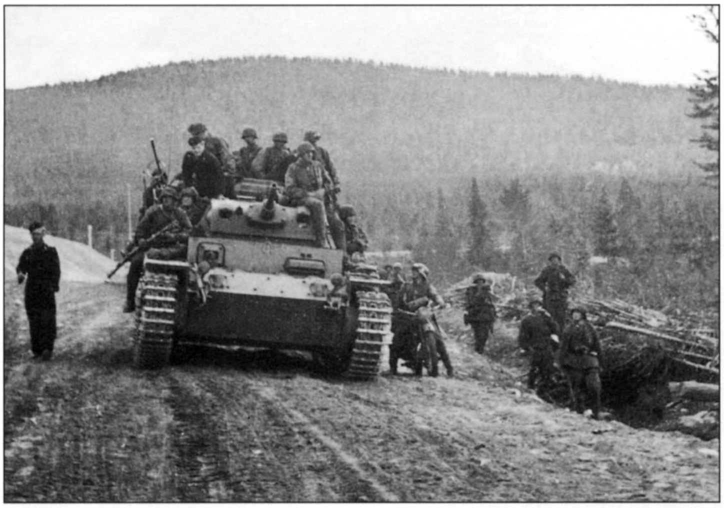
A photo taken at a repair depot created by the Germans for the re-building of T-35s. The German specialists were so impressed by this tank that they gave an order to send to Germany one fully serviceable tank (which had to be repaired by the use of parts taken from few other vehicles) for tests. No fewer than three of these "mastodons" were collected in this depot. One of them was sent to Kummersdorf, where it was tested by Heereswaffenamt. This photo shows the rarest version of the T-35, the Model 1939, of which only six pieces were built. This series differed externally from the older ones in the following ways: conical turrets (introduced on the Model 1938), sloped side plates of the superstructure and the new pattern of rivets on the chassis armor. To the left of this tank is part of an another T-35, this time from the 1934-1936 production series.

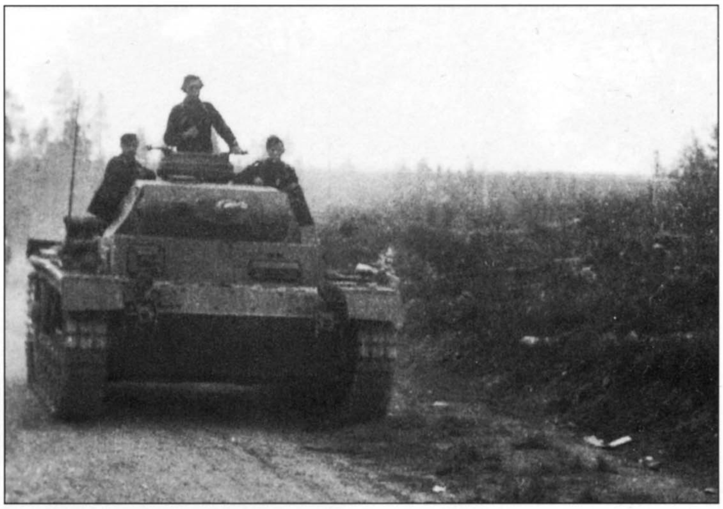


Also photographed at the same repair depot was the central part of the third T-35 "fortress", which bears scars from no less than seven hits by 3.7cm rounds. This is the command version of the series produced in 1937, when modifications in the armor plate covering the chassis were introduced. Note the pattern of these modifications — it is different from similar patterns seen on the models 1938 and 1939.

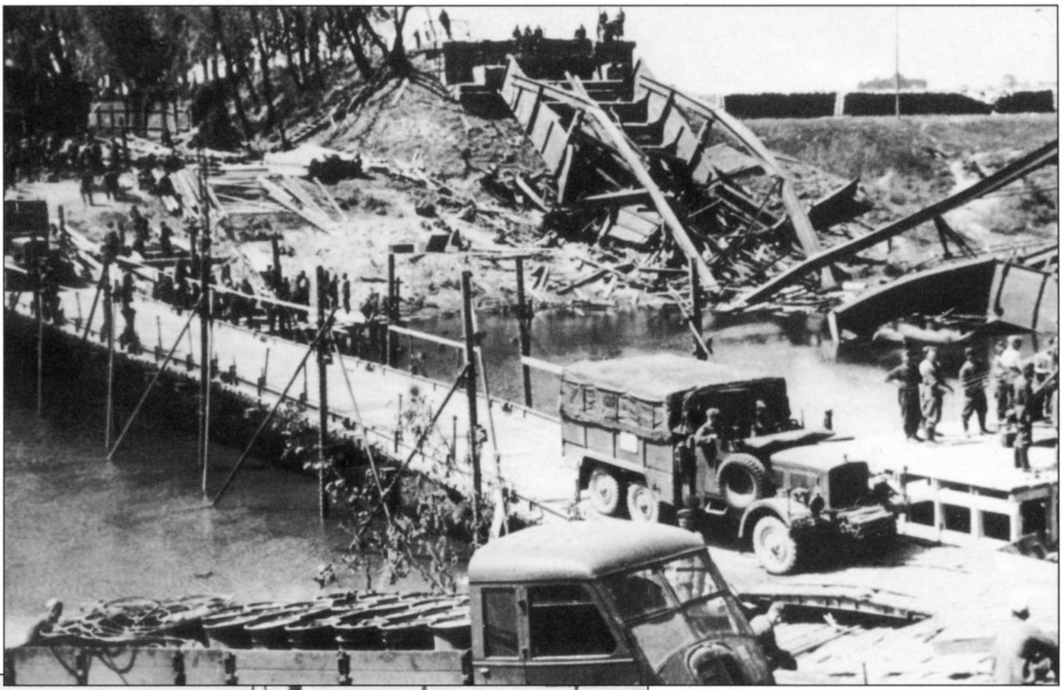


This sign was erected by a German armored division in Russia at the end of August to inform the reader that it was on the site of this small bridge on 18 August that the division destroyed the 1,000th Soviet tank since the beginning of Operation "Barabrossa".

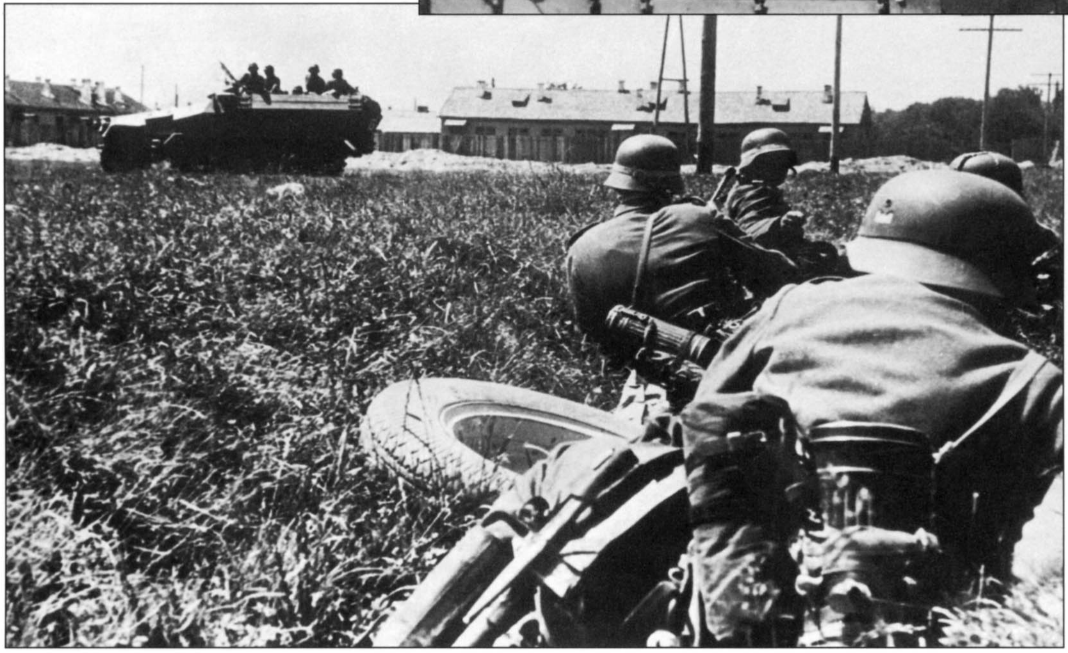




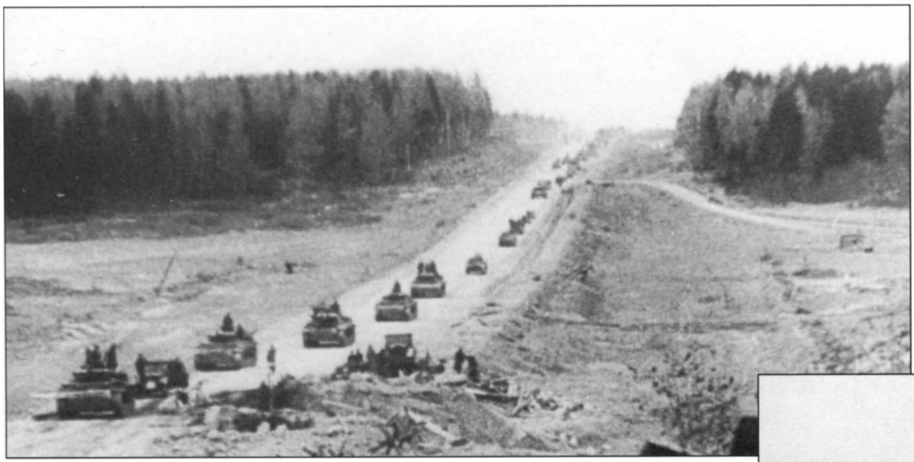
Two shots of Pz.Kpfw. IIIs from 1.Panzer-Division, which belonged to Pz.Gr.4, photographed in late summer 1941 during the advance of Pz.Rgt.1 of this division into the Leningrad area. There were three divisions involved in the battles for the Baltic states, all of them rather weak due to the poor quality of the equipment they employed. The strongest was 1.Panzer-Division, which was equipped with 145 tanks, among them 71 Pz.Kpfw. IIIs with the 5cm short-barreled gun and 20 Pz.Kpfw. IV tanks. Two other divisions had more tanks (6.Panzer-Division with 232 and 8.Panzer-Division with 212) than 1.Panzer-Division, but 6.Panzer-Divison was mainly equipped with Pz.Kpfw. 35(t)s and 8.Panzer-Division fielded Pz.Kpfw. 38(t)s.



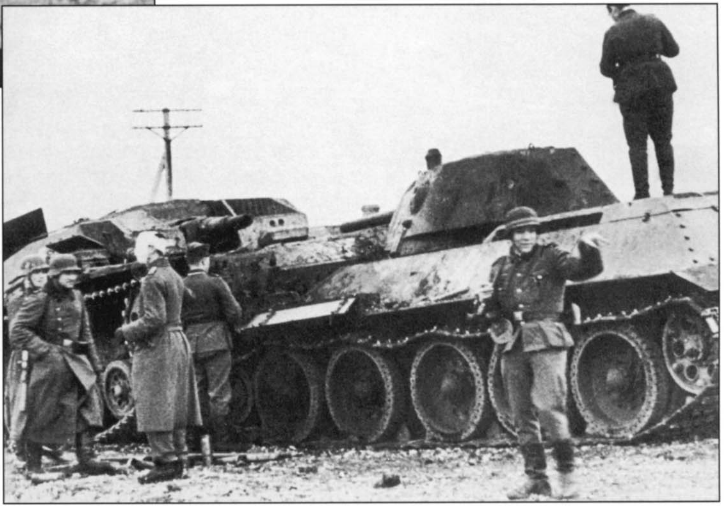
German- and French-made trucks of 5.Panzer-Division cross a river in Russia during preparations for the offensive against Moscow, September 1941. The 5.Panzer-Division was one of two new units sent to the Soviet Union in the autumn to replace the losses incurred by Heeresgruppe Mitte during the earlier months of "Barbarossa". Note that the engine cover of the Renault truck in the foreground is covered with tactical markings, including the yellow insignia of 5.Panzer-Division.



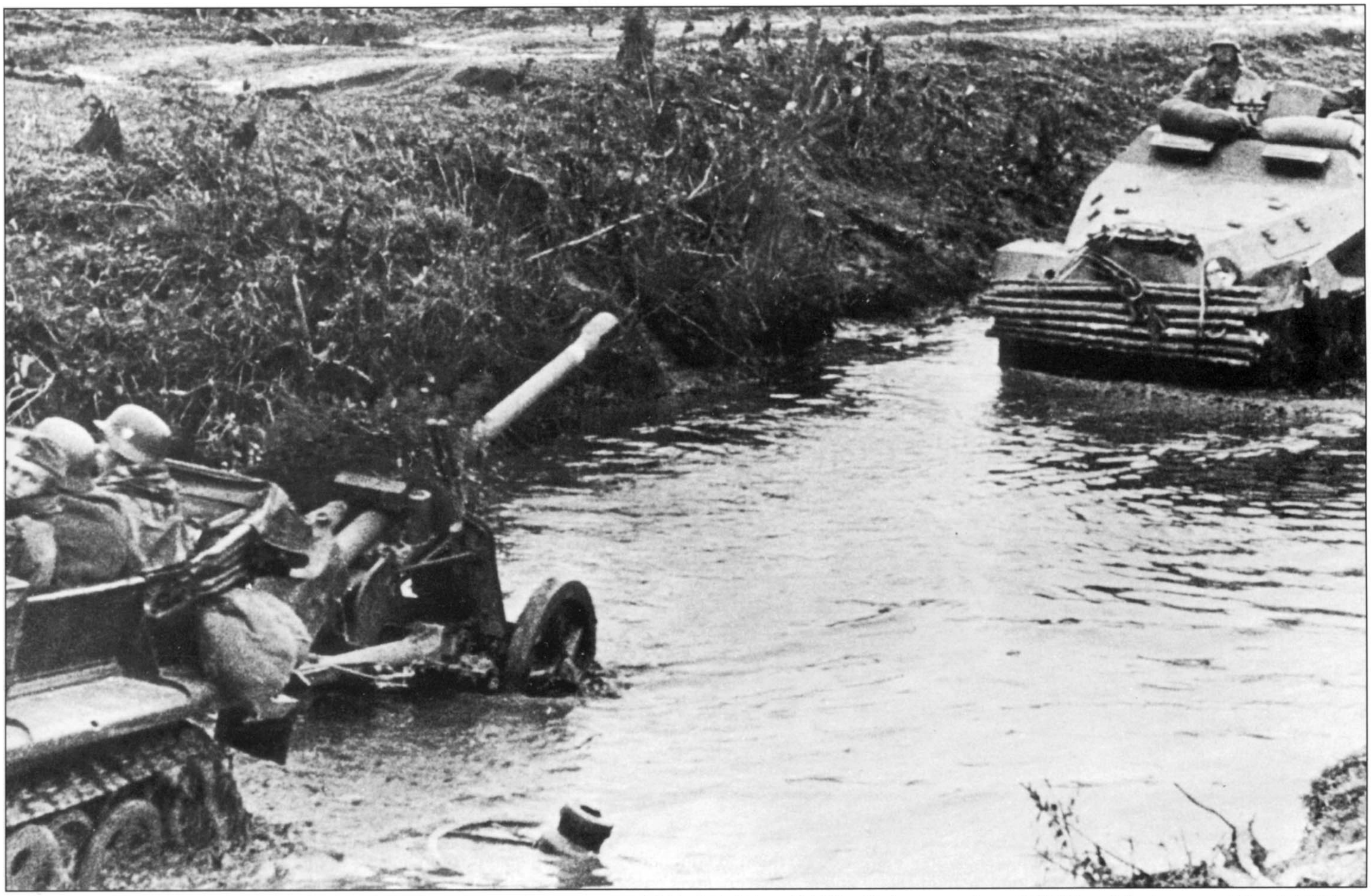
German troops keep alert as a Sd.Kfz. 251/1 Ausf. B advances towards an enemy position. Hanomags from Pz.Gr.2, which was commanded by Generaloberst Heinz Guderian, were identified with a white letter "G" (for Guderian) on the rear of the vehicles. Note the strange equipment affixed to the upper portion of the side of the combat compartment.



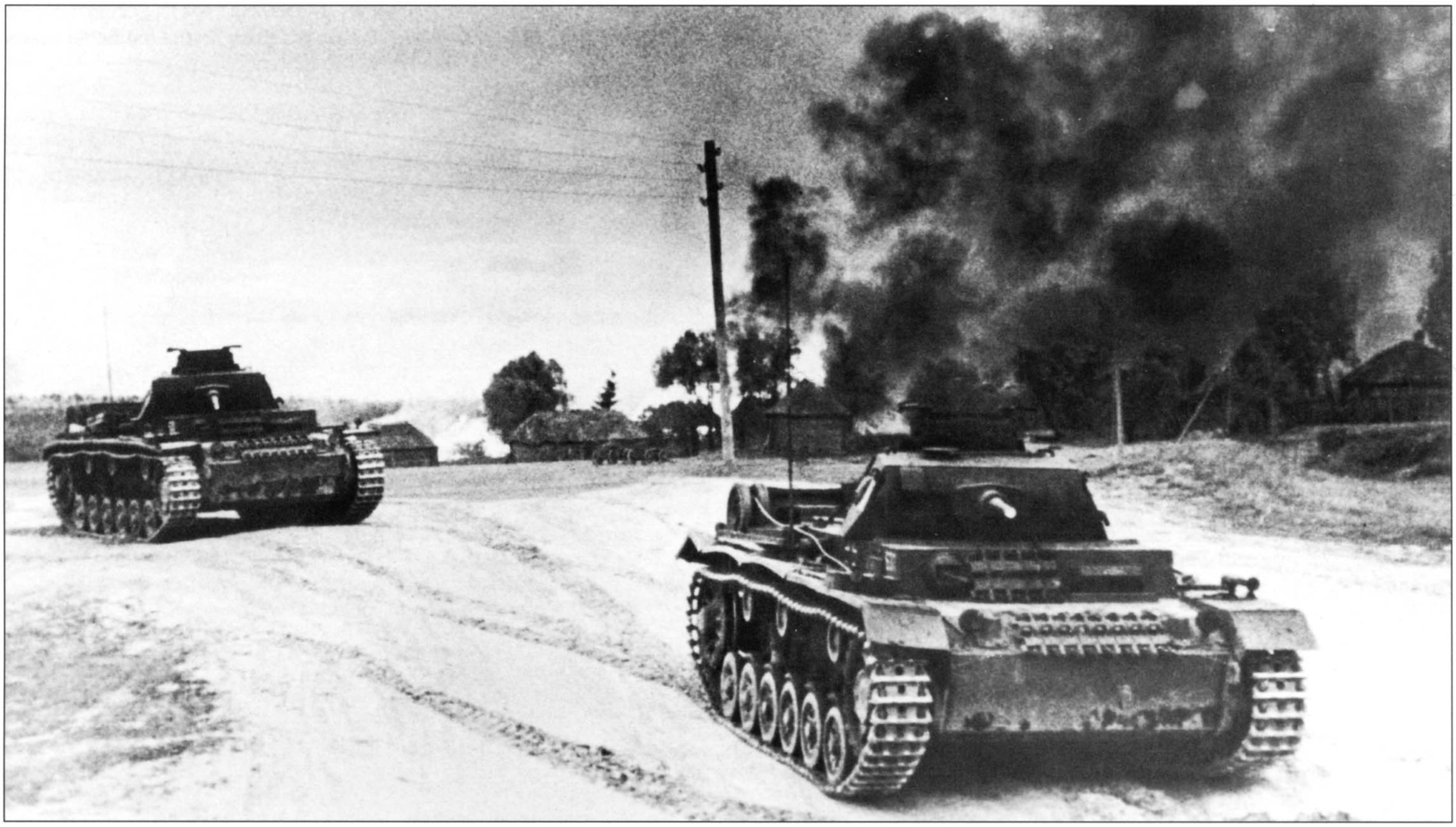
Photographed in October 1941, a long train of Pz.Gr.4 vehicles travels across one of the better roads in the Soviet Union, the so-called Smolensk-Moscow highway, which would lead the Germans tanks directly into the heart of the Moscow. This photo offers a good illustration of the landscape of the Soviet battlefields and the way armored troops were formed up during offensive operations in such terrain.



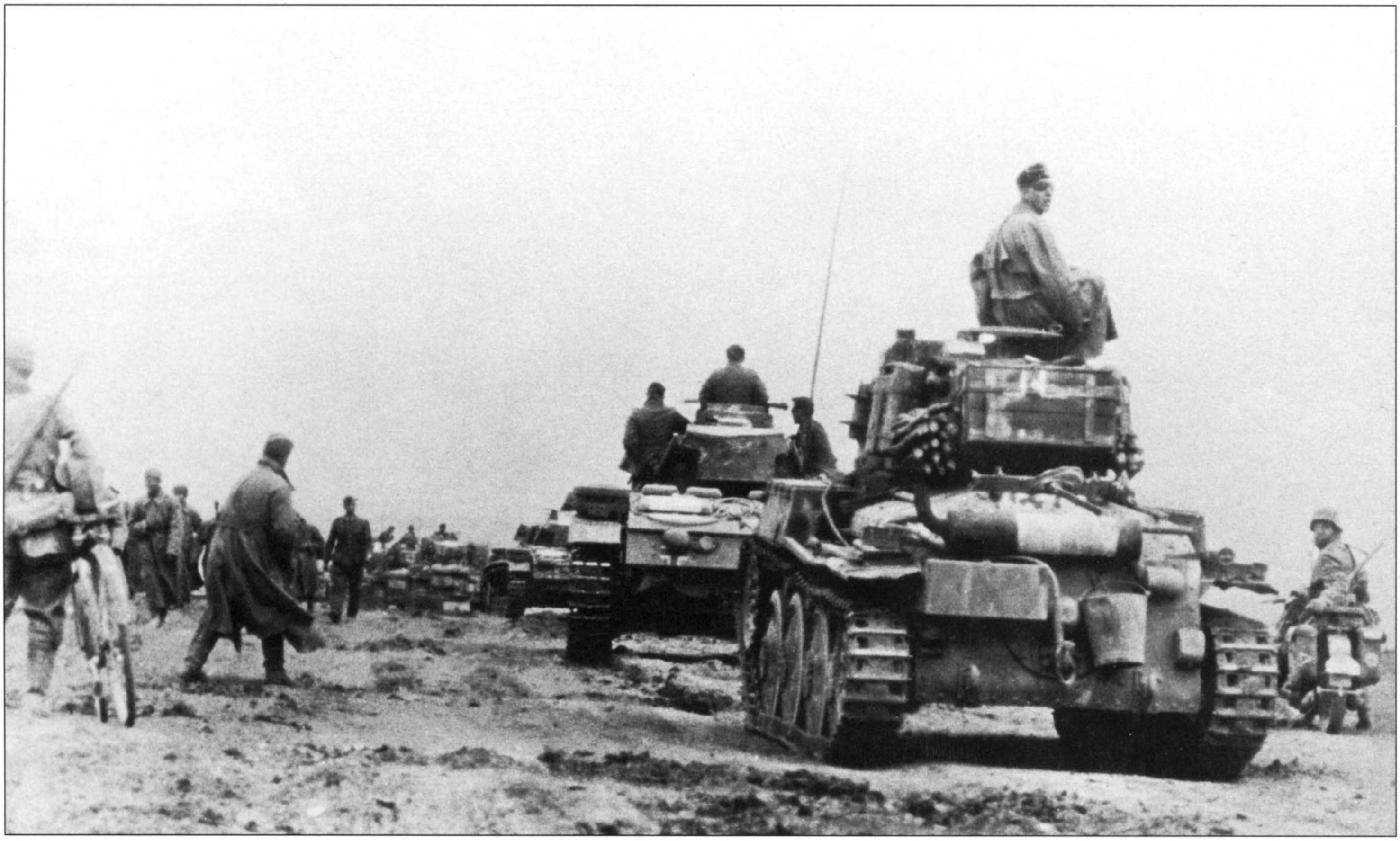
This photo shows the result of a collision between a StuG III and a T-34 in October 1941. Such a mishap was rare, even though large numbers of tanks on the battlefields were obscured by dust and smoke. One of the StuG III crew members, who was wounded in the head, is standing near his vehicle.



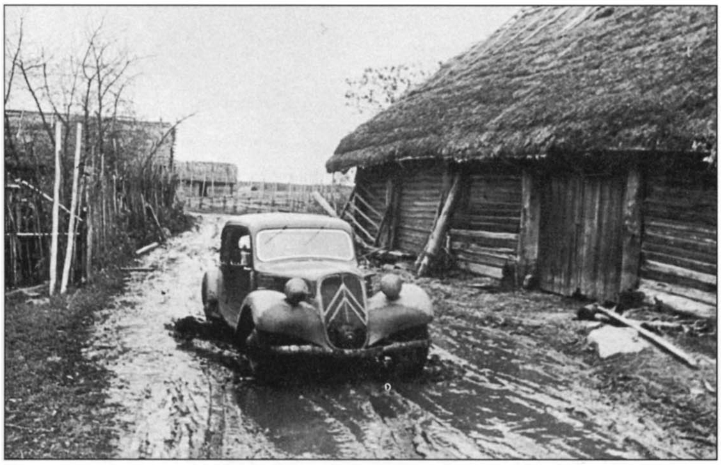
Vehicles of 1.Panzer-Division move through a stream in autumn of 1941. At left is a Sd.Kfz. 10 towing a 5cm PAK 38 anti-tank gun, while at right is a Sd.Kfz. 251/1 Ausf. B half-track. During the struggles for Moscow, this division belonged to XLI Ar.Kp. of Pz.Gr.3 and fought on the northern flank. Despite the lack of Pz.Gr.40, whose supplies had been cut off by Hitler's order, the division used the PAK 38 very successfully to repulse Soviet armored counterattacks until the beginning of December.



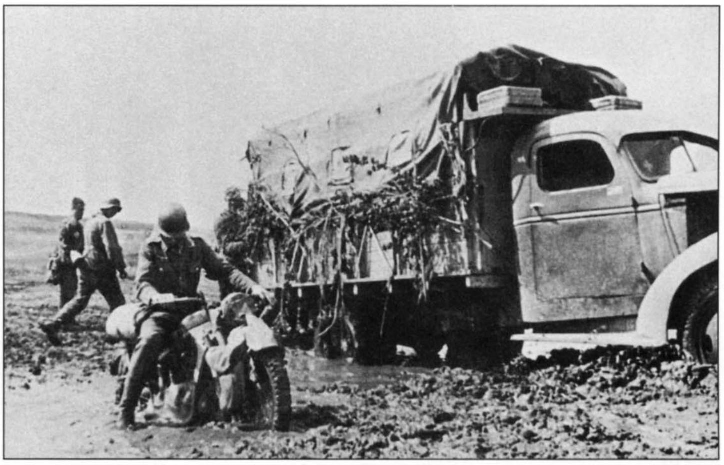
A pair of Pz.Kpfw. III Ausf. Js advance down a village road not far from Moscow in October 1941. There were 14 Panzer divisions involved in the operation to encircle Moscow. They were organized into eight Panzerkorps employed by three Panzergruppen, including one taken from Herresgruppe Nord, where only a Panzerkorps made up of two Panzer divisions equipped with about 250 tanks remained.



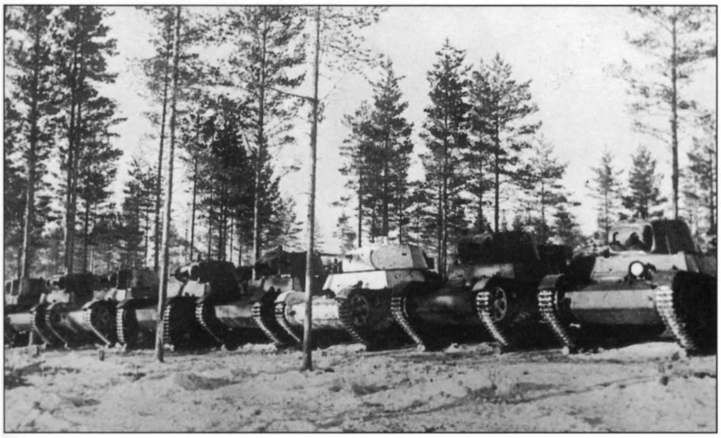
The road to Moscow was a difficult one, even if there was no need to fight hard for it. Long columns of vehicles and soldiers went straight to the capital of the Soviet Union until they were stopped by mud. Here one of these columns passes a group of Soviet POWs. The tanks visible in this photo are Pz.Kpfw. IIIs and Pz.Kpfw. 38(t)s. Note the Pz.Kpfw. 38(t) nearest to camera — its turret is loaded down with miscellaneous equipment including tracks, jerrycans and two bundles of wood attached to the wooden stowage box installed at the rear of the turret. Such cluttered Pz.Kpfw. 38(t)s were seen quite often during this operation. This tank has a national marking painted on the wooden box, but it is partly covered by mud. It also has a white stripe painted on the exhaust pipe, the meaning of which is unknown, but it is interesting to note that the next two tanks have similar markings painted in other places.



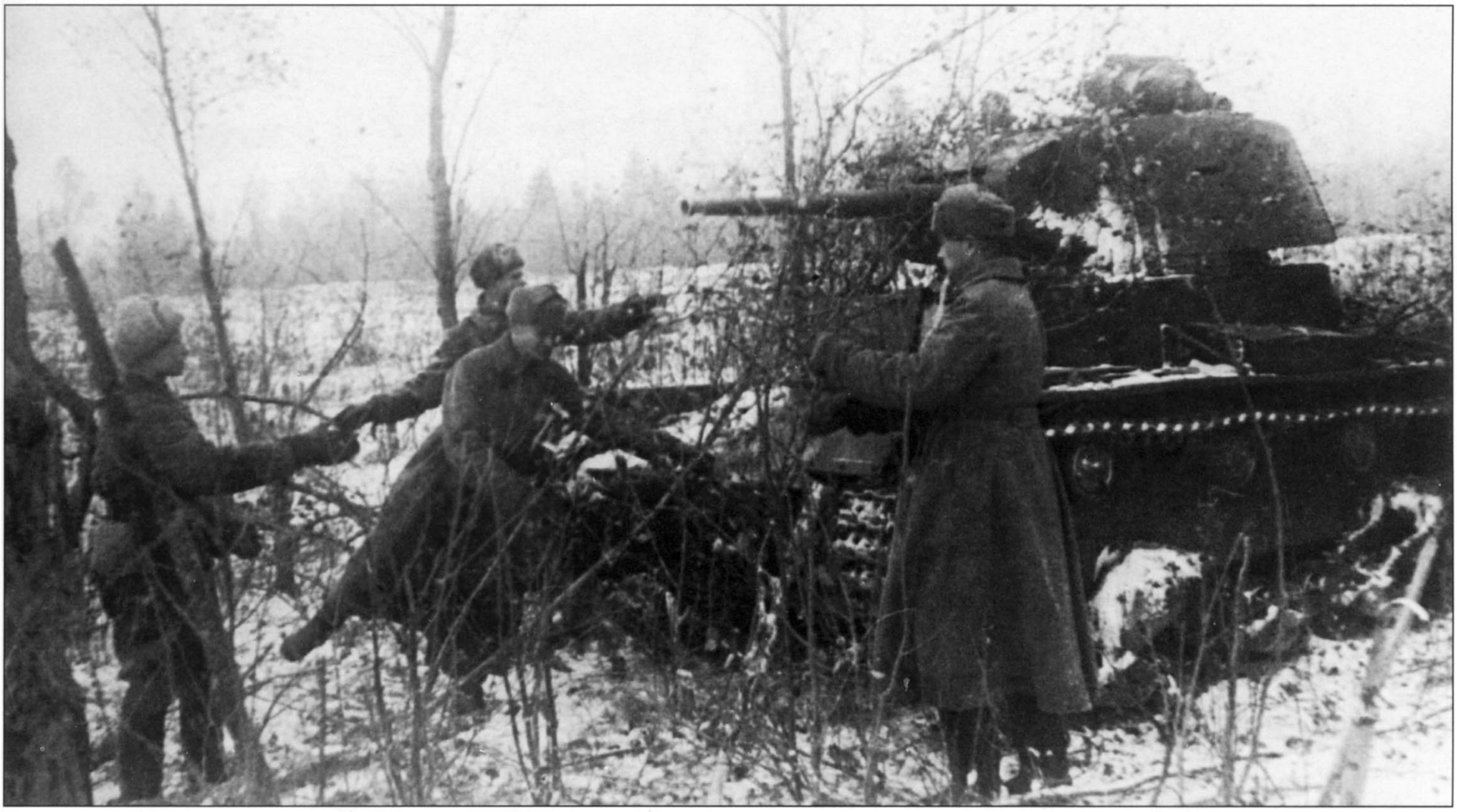
A sight like this was typical in Russia during the wet seasons. The mud wreaked havoc on the vehicles of both armies. The village road is clearly visible, but it looks more like a small brook than a road.



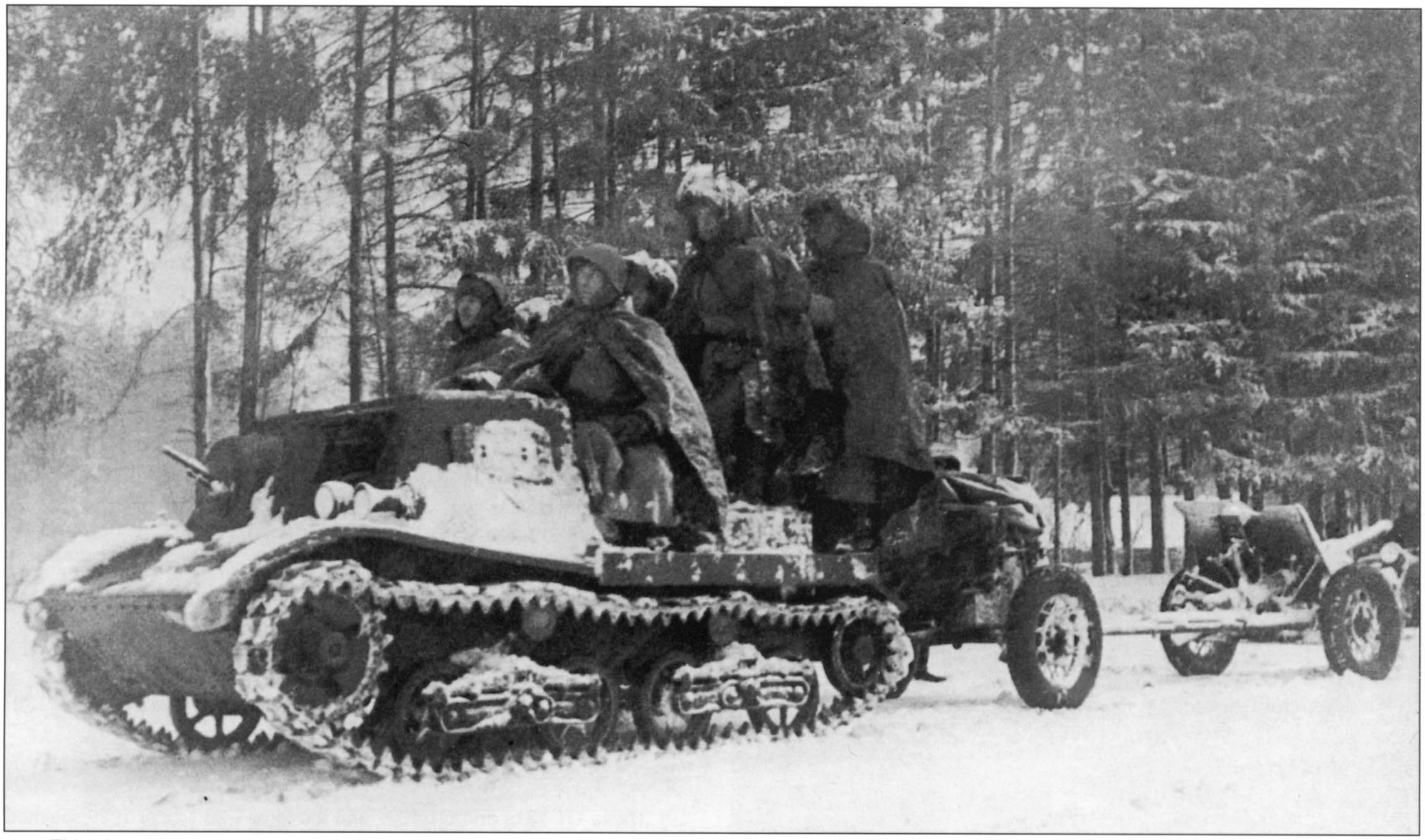
Motorcycles and trucks were as vulnerable as any other vehicles when they received a nasty surprise from the weather— like the seemingly small puddle flowing across this road. During the October-November fights for Moscow, the Soviets suffered the same weather-related problems, but since they used trains as their main transport they encountered fewer problems than the Germans.



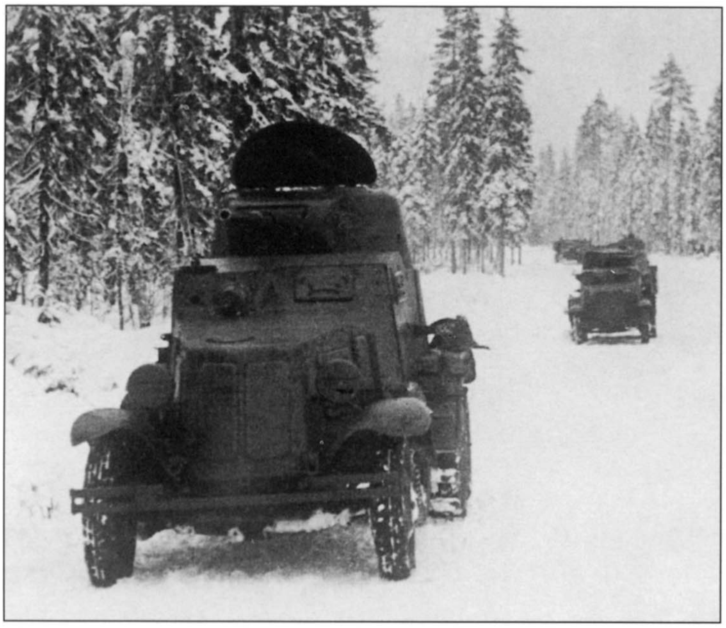
These OT-131s and OT-132s and the lone T-26 Model 1939 (painted with white camouflage) are ready for work. The Red Army was the only army in the world that possessed a large number of units equipped with almost 500 flame-thrower tanks, often ambiguously called “chemical tanks” by the Soviets. Most of them were lost while fighting in the frontier area, but the rest were put into action during the defense of Moscow.



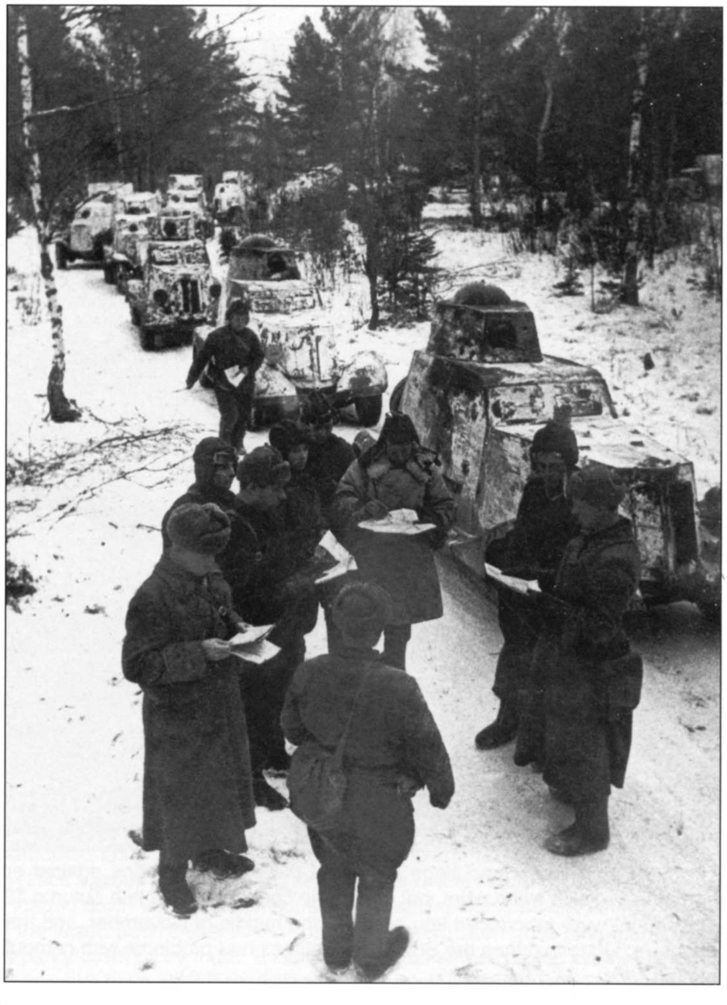
Soviet soldiers camouflage a T-26 of the pre-1939 series against enemy air reconnaissance in November 1941. This tank would be much better camouflaged with white paint, but during the chaotic days of late autumn 1941 there was no time for such luxury. Tanks and vehicles fully camouflaged with white paint were introduced into action in the middle of November, and then in the beginning of December when the Soviets launched a massive counter-offensive. Up to that time the Soviets sometimes had problems with camouflage, and the Germans were sometimes surprised by the rashness of the Soviet staffs.



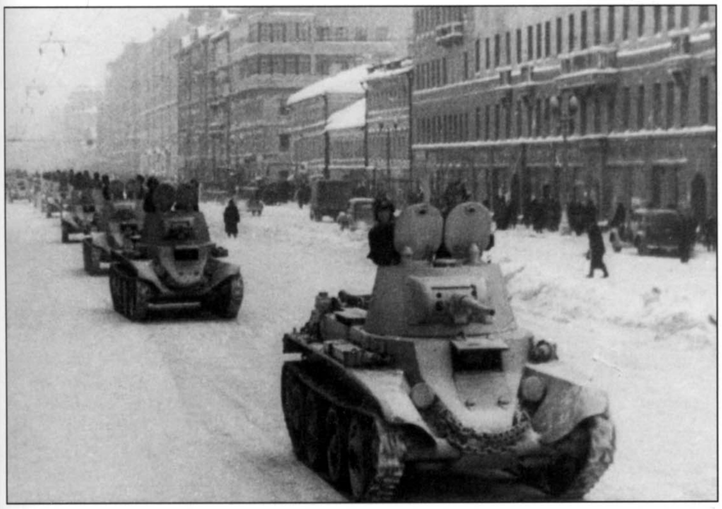
This photo illustrates well the problematic military thinking in the Soviet Union. Members of the Soviet Army and military industry preferred simple, even primitive weapons, which were more difficult to incorporate into the logistic scheme than "Western" weapons. The Komsomolets tractor was mobile and fast, but it was also too small. Therefore the gun crew had no comfortable compartment in which to be transported and protected from the elements. Further, there was no space for additional ammunition or equipment, so the intermediate link between the tractor and gun was necessary.



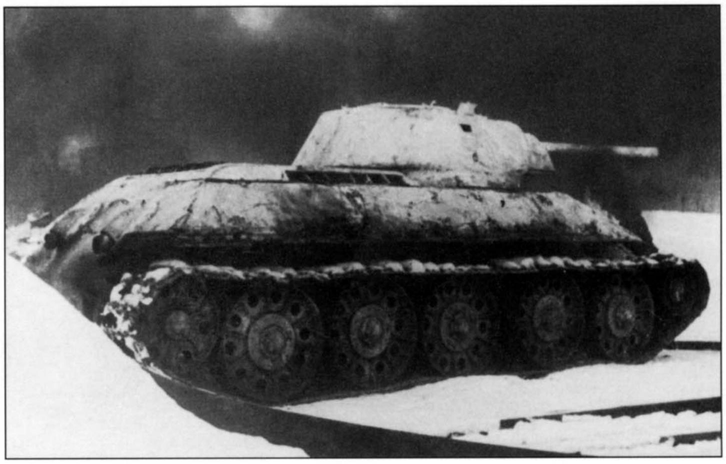
The landscape before Moscow was quite unsuited for armored combat. As we can see in this photo, columns of armored vehicles — in this instance BA-10 heavy armored cars — very often had to travel and fight in forests without any cover against ambushes and where the full potential of their power could not be used. Note how easy it is to spot these vehicles during the winter when they are not camouflaged with white paint.



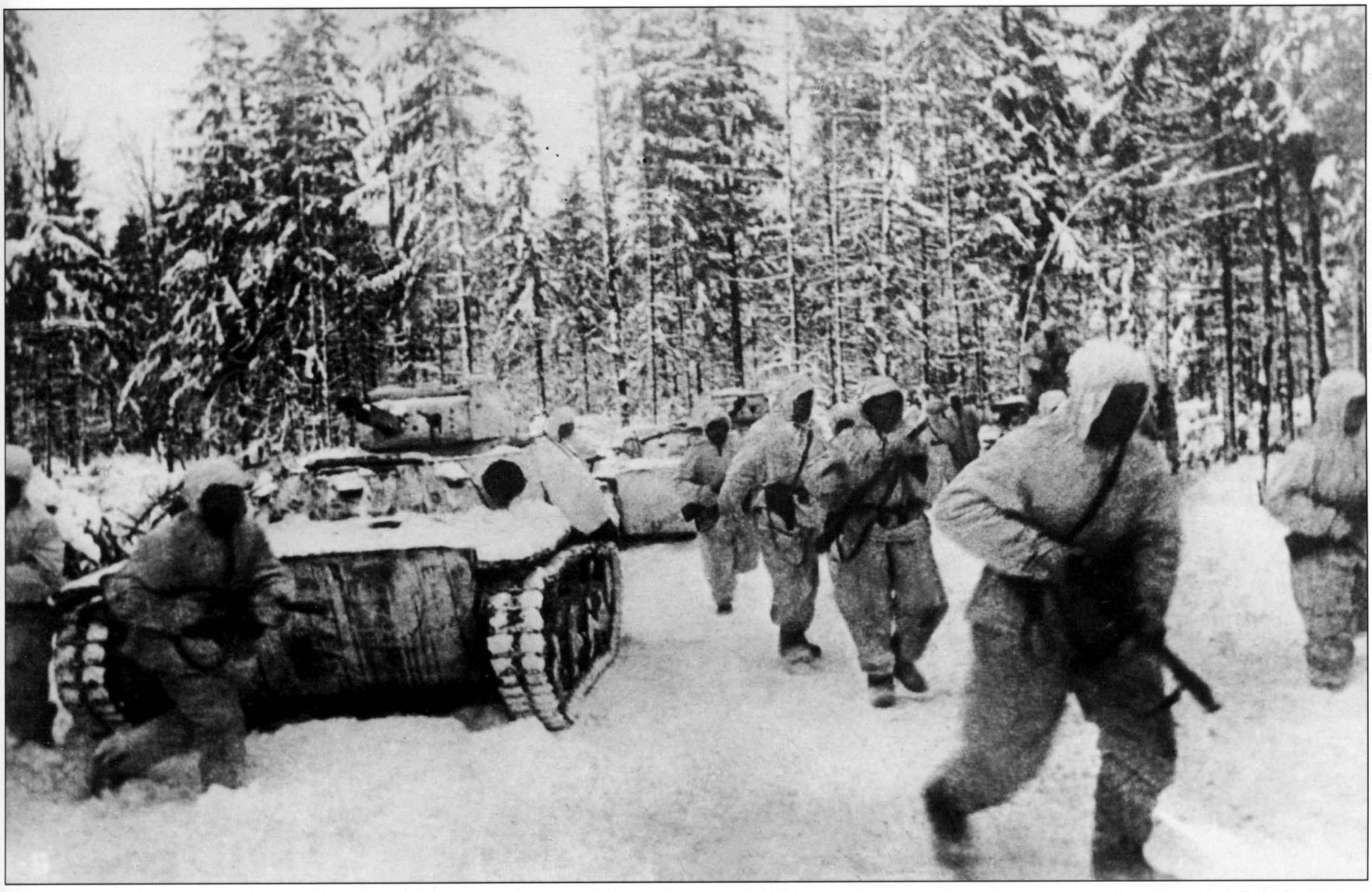
A reconnaissance column of an armored division pauses in the Mozhaysk area. Armored cars were the standard armament of recce units up to 1943, when they were replaced by light tanks. The first three vehicles are BA-20 light armored cars, and behind them are six BA-10 heavy armored cars. Note the different patterns of white camouflage applied to the BA-20s.



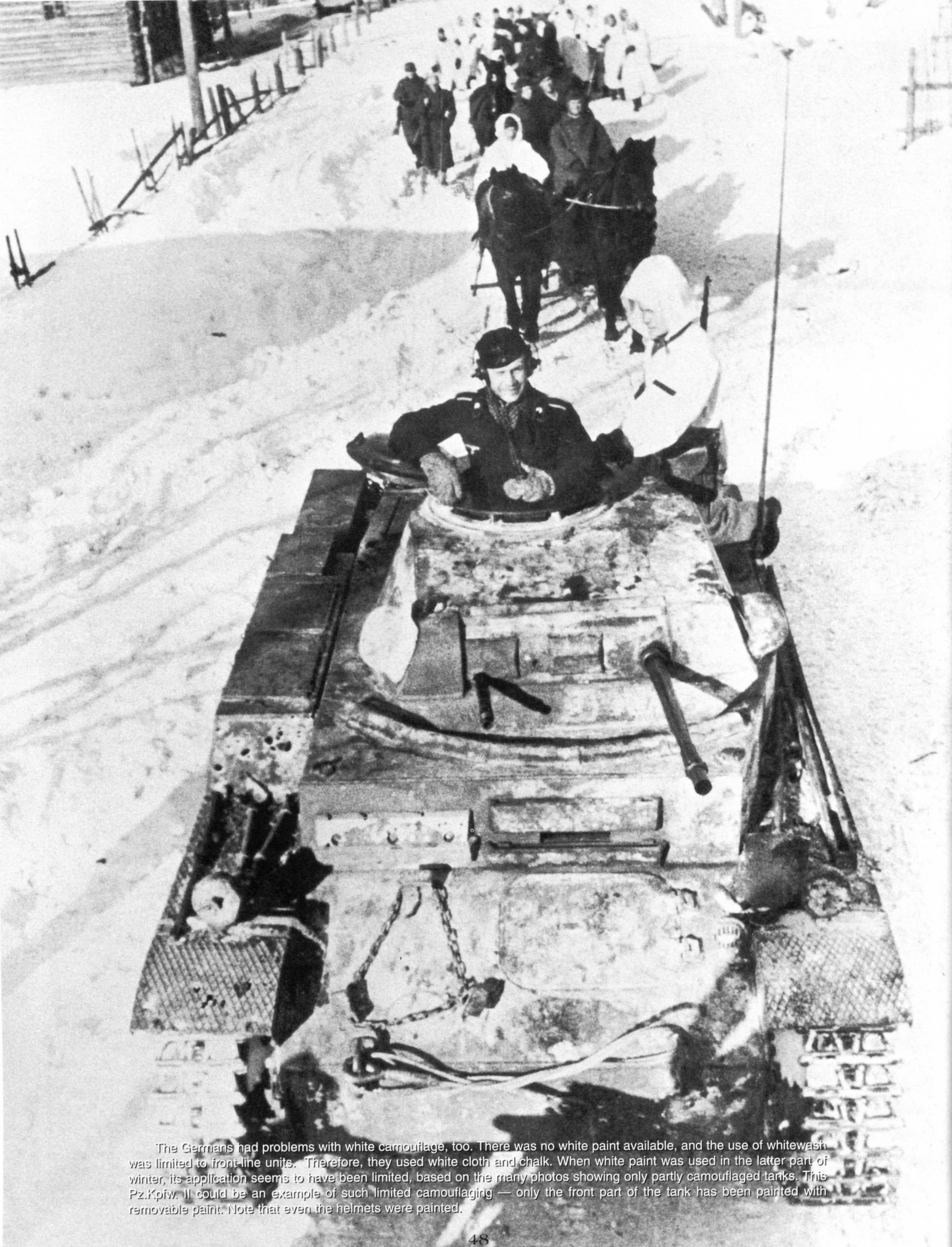
A column of BT-7 tanks rolls along Gorki Street to Red Square in Moscow, and from there to the front line, at the beginning of November 1941. All of the vehicles are covered with solid coat of white.



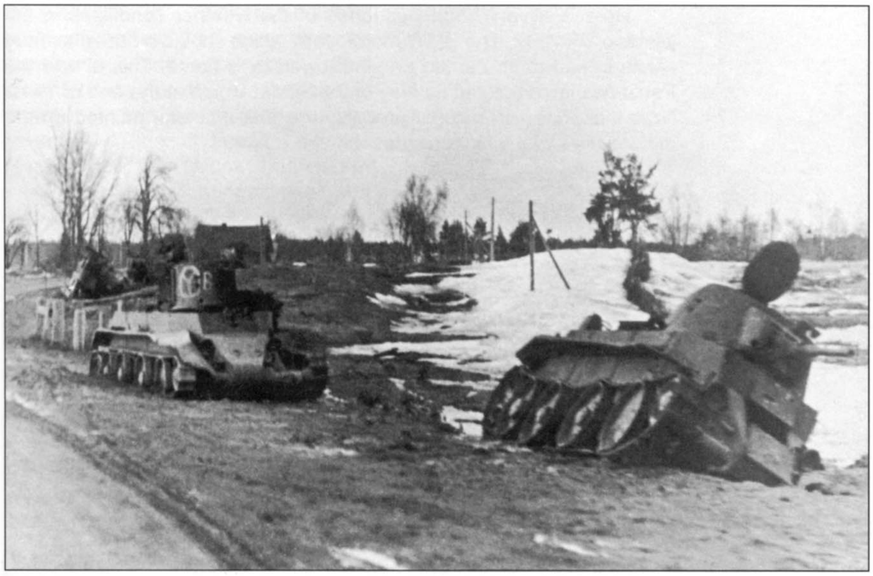
The T-34 at the end of the 1941 production series was built in as simple a shape as possible. Vehicles from this period usually had no storage boxes (except the standard one on the front part of the left mudguard), and the equipment was very limited. All of the road wheels were made of steel. They were first introduced in the autumn of 1941 in the Stalingrad factory because of a lack of rubber.



A reconnaissance unit from a Siberian division goes to work. It is equipped with T-40 light tanks, and its soldiers are well prepared to fight in severe winter conditions. Clothed in white, the troops are armed for the most part with submachine guns. Men like these could survive and fight for weeks in the harsh winter environment. The tanks are painted with whitewash and covered with snow on the upper surfaces. During the fighting in the forests near Moscow, the recce troops were usually divided up into small groups with three to four tanks each.

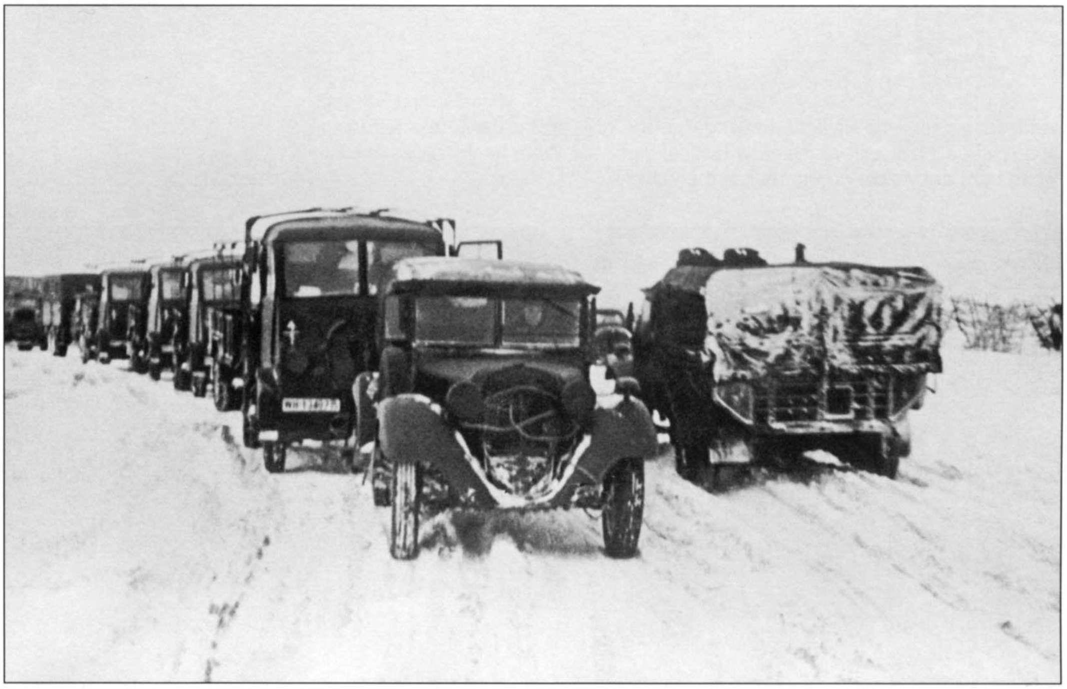


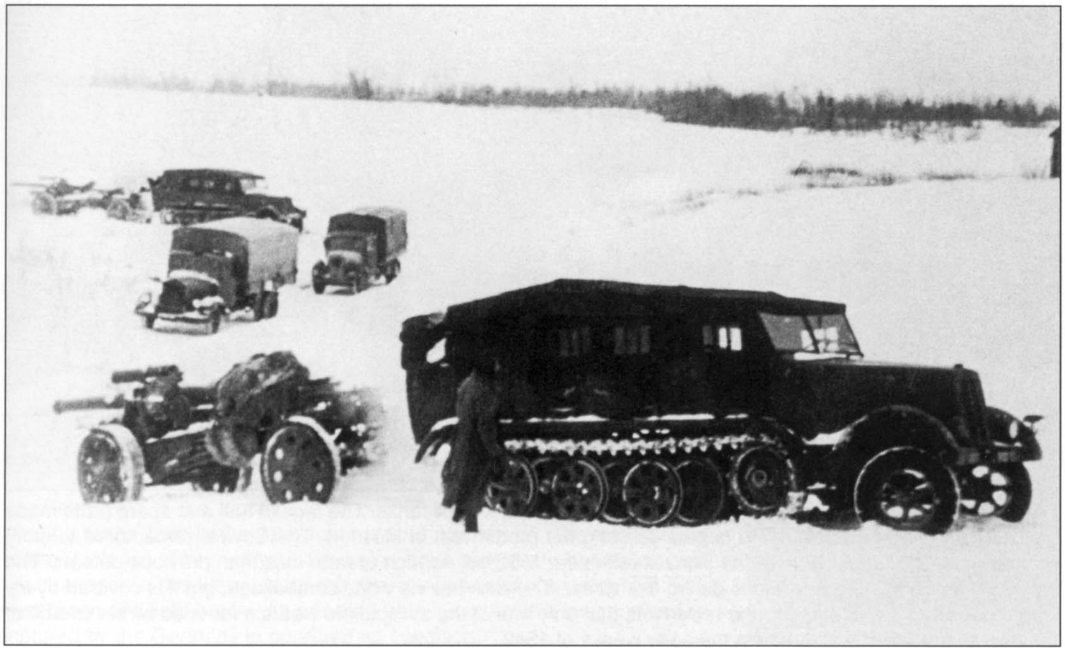
The Germans had problems with white camouflage, too. There was no white paint available, and the use of whitewash was limited to front-line units. Therefore, they used white cloth and chalk. When white paint was used in the latter part of winter, its application seems to have been limited, based on the many photos showing only partly camouflaged tanks. This Pz.Kpfw. II could be an example of such limited camouflaging — only the front part of the tank has been painted with removable paint. Note that even the helmets were painted.



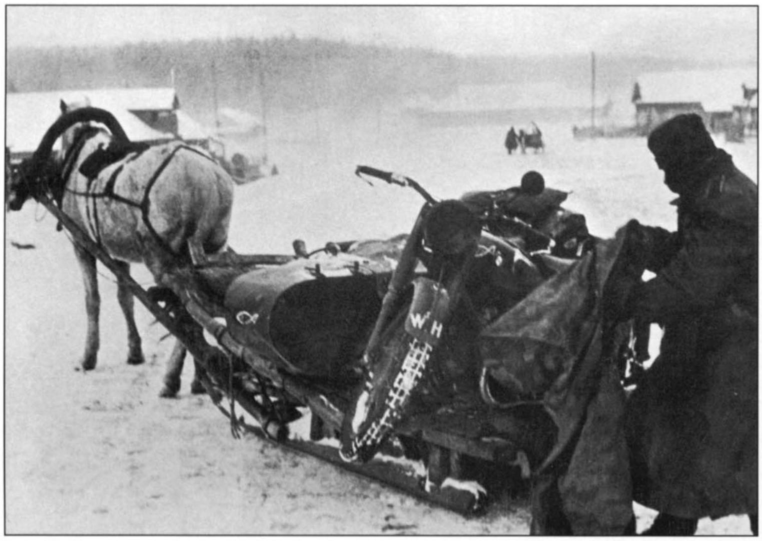
Wrecks of vehicles left in the wake of 12.Panzer-Division. These three burned-out BT-7 tanks were destroyed on the road to Leningrad during the winter months. One of them has the emblem of 12.Panzer-Division painted on its turret.

Columns of trucks pass each other on their way to assembly areas. Limited supplies was the biggest problem for the Germans during the winter of 1941/42, a problem that almost led to the collapse of Das Heer in the Soviet Union. The column at left in the photo is being led by a Kfz. 13, and four Renault trucks follow it. The first of them has a tactical sign painted over its dark gray camouflage.

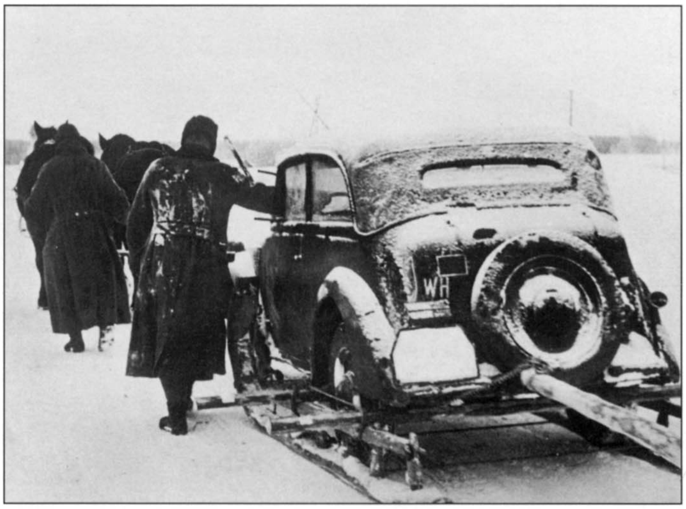




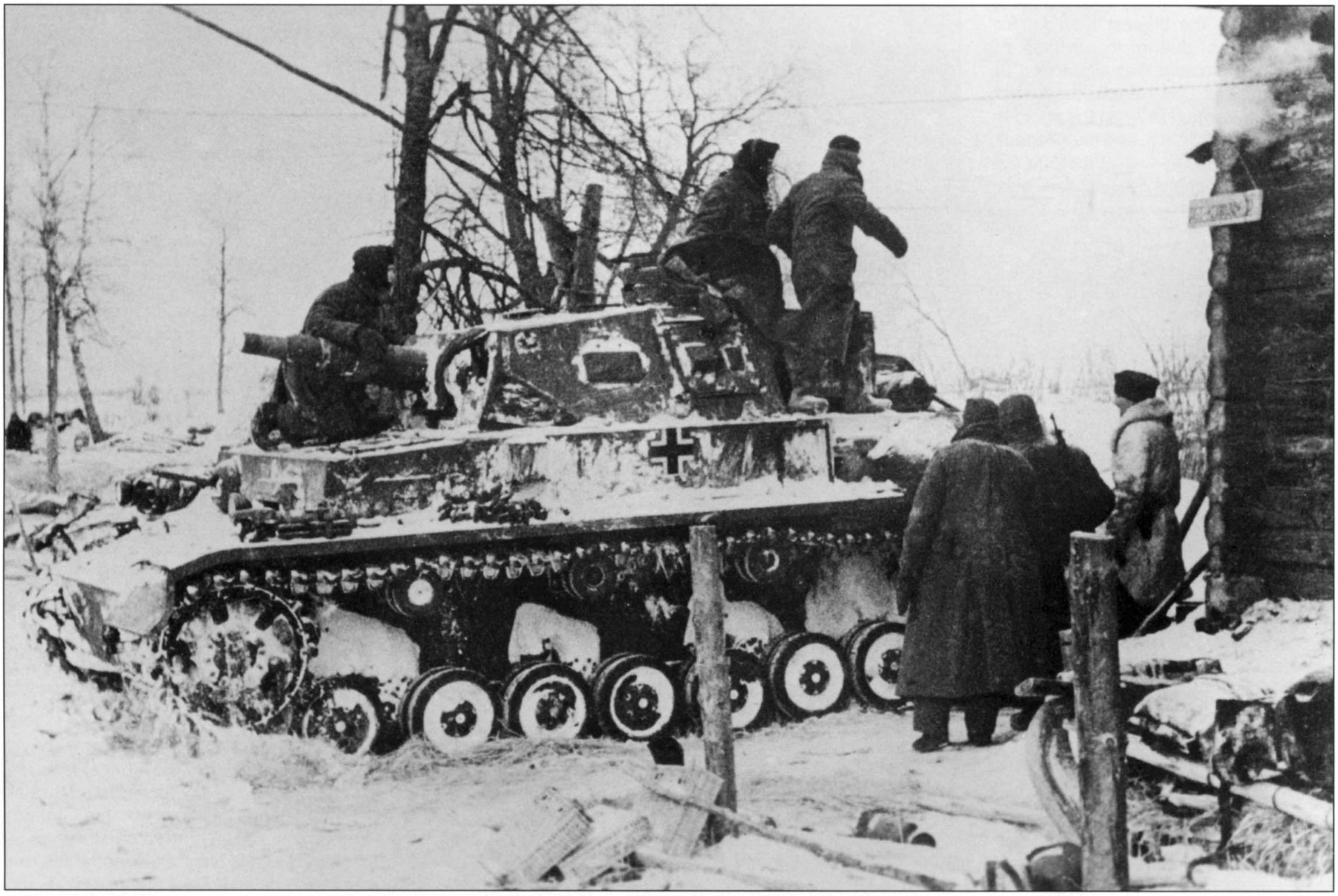
A heavy artillery battery travels across a snow-covered Russian landscape. Following the muddy season the German divisions could move again after more snow fell, but only until they were stopped by deadly frost. In such weather even a 12-ton Sd.Kfz. 8 prime mover like the one seen in this photo towing a 15cm howitzer was of no help. Note how easy it is to identify the dark gray German vehicles during the winter season.



Here is a very good illustration of the weather conditions in the winter of 1941/42. The BMW motorcycle, which should be used to carry soldiers, had to be carried on sled towed by a horse. This is how the Panzerwaffe completed its duty in the Soviet Union at the end of 1941. Note the white fish design, probably the unit emblem, painted on the motorcycle's fuel tank and sidecar.

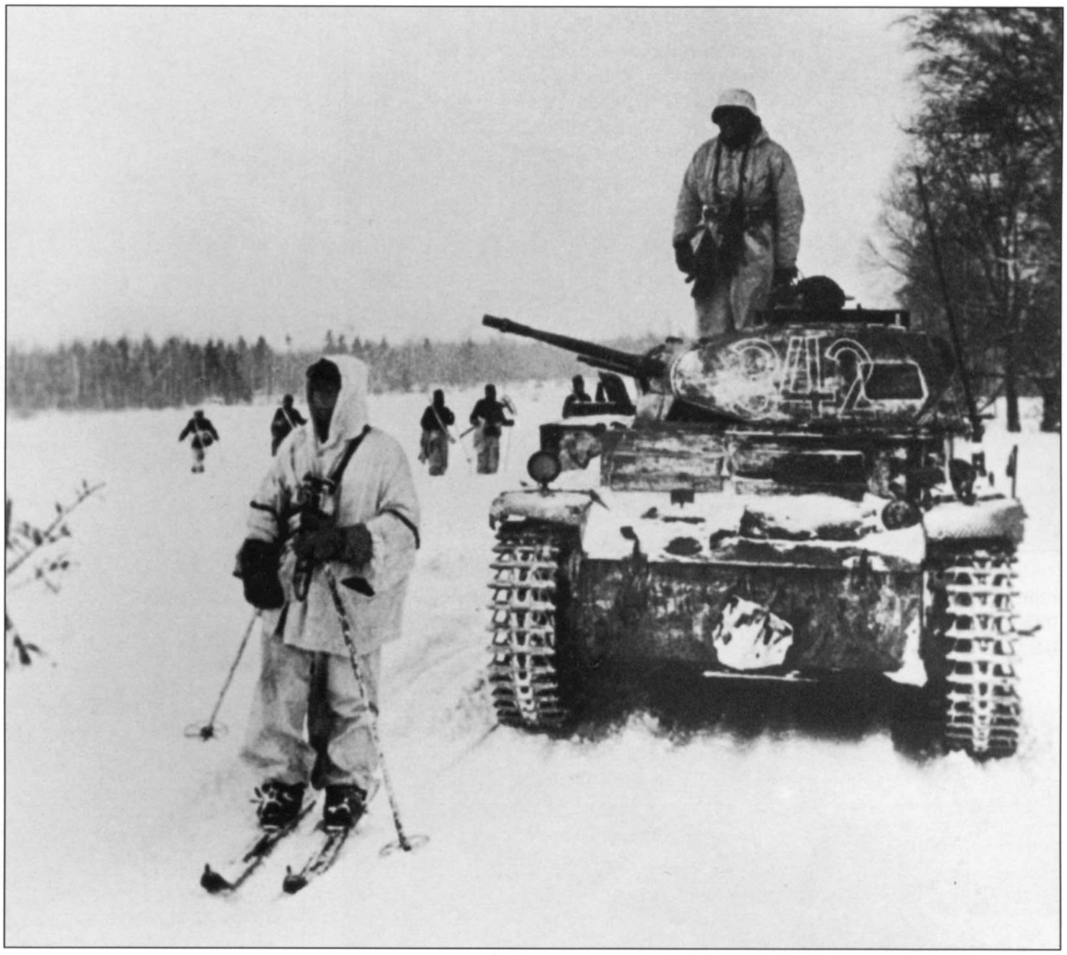


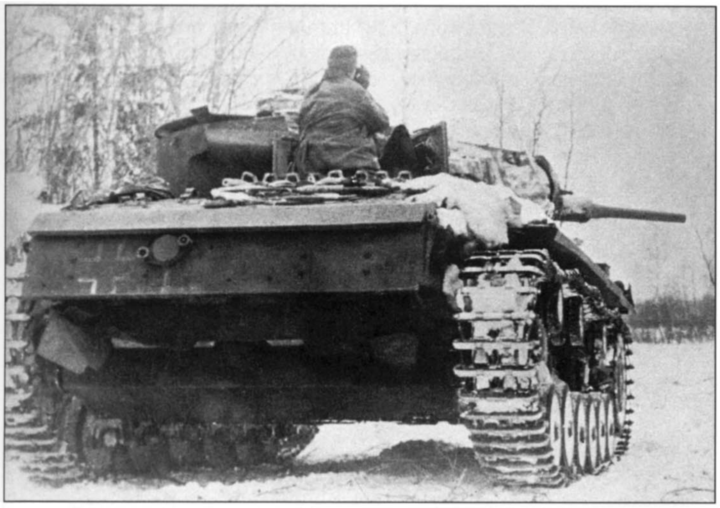
An Opel staff car from an infantry unit is hauled by animals over a frozen landscape. Note the tactical markings on the rear of the car to the left of the spare wheel. The unit emblem, a tactical sign, the Wehrmacht code, and two white bars are visible on the rear of the vehicle.



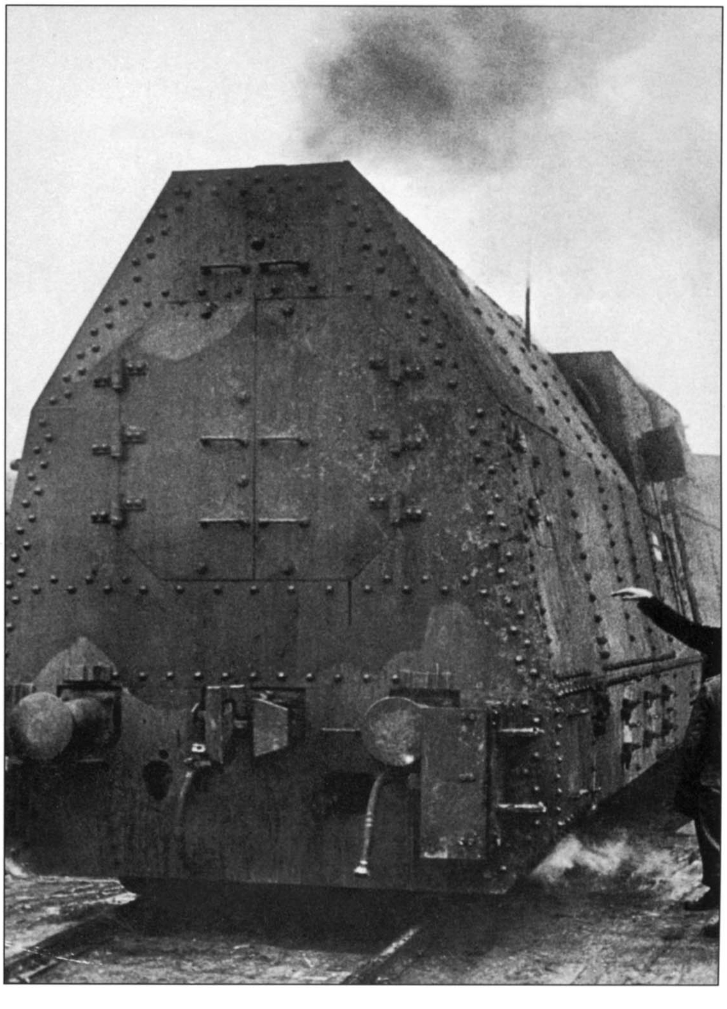
The frosty winter of 1941/42 was a deadly season for the Panzertruppen due to the many breakdowns of tanks. The lack of fuel and spare parts made dozens of tanks unfit for combat and even caused many to be abandoned in depots or along the roads west of Moscow. The Soviets re-captured territory from the Germans and captured countless vehicles, making the collapse of the Panzerwaffe near Moscow a much greater loss than previous defeats. The Pz.Kpfw. IV seen in this photo shows the condition in which fighting took place during this winter. The tank has no white camouflage, but it is covered by icy snow that partly camouflages the vehicle, though it could cause damage to the tank. Note that only one of the six soldiers wears a fur-lined winter overcoat. All others still wear the standard uniform, even though the photo was taken in the early weeks of 1942.

Though the winter uniforms eventually arrived, the Panzer divisions remained under-gunned. The replacements for the unserviceable tanks lost previously had not yet arrived. The lack of troops was also severe, but the troops had better equipment and tank support, even if it was provided by light ones like the Pz.Kpfw. II in this photo. The tank still wears dark gray camouflage with a big tactical number "342", probably the two-color style with a black or red interior and white outline, which was rarely used in this period. The only white camouflage was the snow covering the tank, particularly the upper surfaces, which was less important than camouflage on the sides.

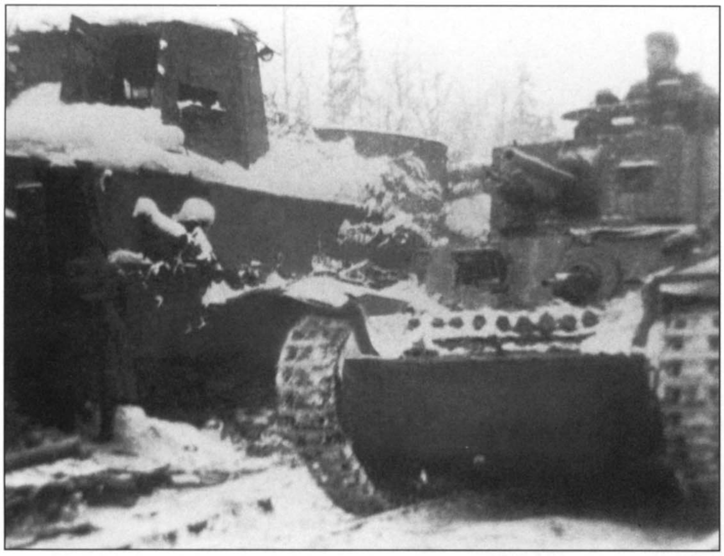




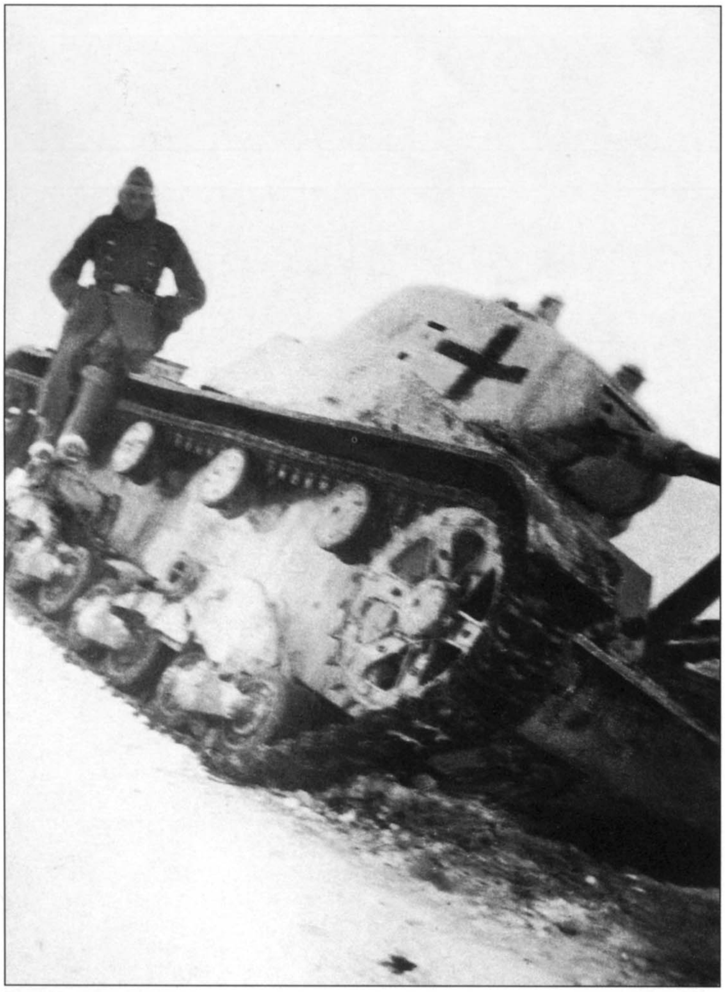
This Pz.Kpfw. III Ausf. H was photographed while patrolling village roads in February 1942, when heavy fighting erupted behind German lines. The crew members are bundled up against the cold weather of the winter of 1941/1942. The frontal part of the turret is covered with whitewash camouflage.



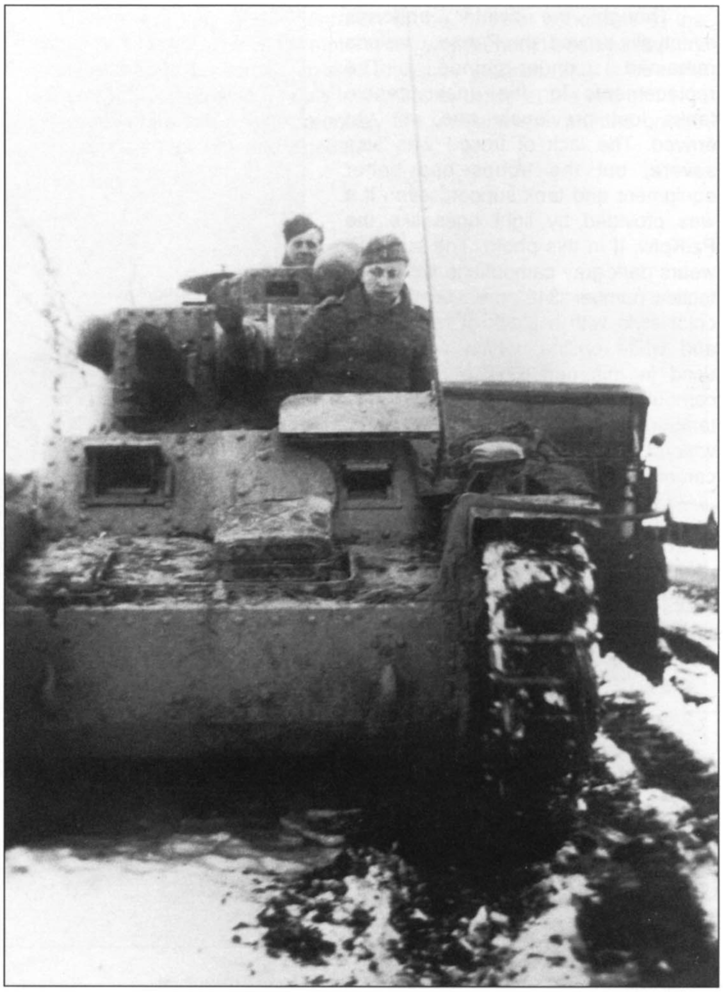
Seen here is the locomotive of one of dozens of improvised Soviet armored trains built in the late summer and autumn of 1941 by different railway factories. They were unlike trains seen previously and those that would appear in the future. Note the two-color camouflage pattern of dark olive green and light brown. An armored train towed by this locomotive was captured by the Germans in near-perfect condition.



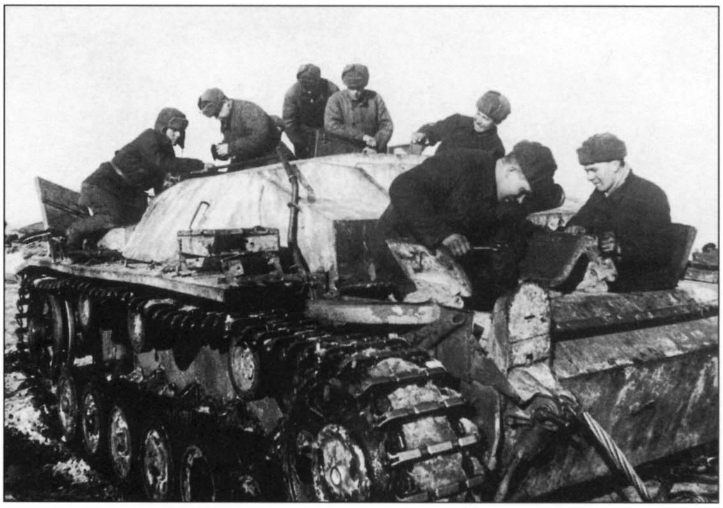
A Pz.Kpfw. 38(t) passes a Soviet armored train while following the railroad tracks. Combat between German tanks/guns and Soviet armored trains was rather rare since they were usually eliminated by the Luftwaffe behind the front lines.



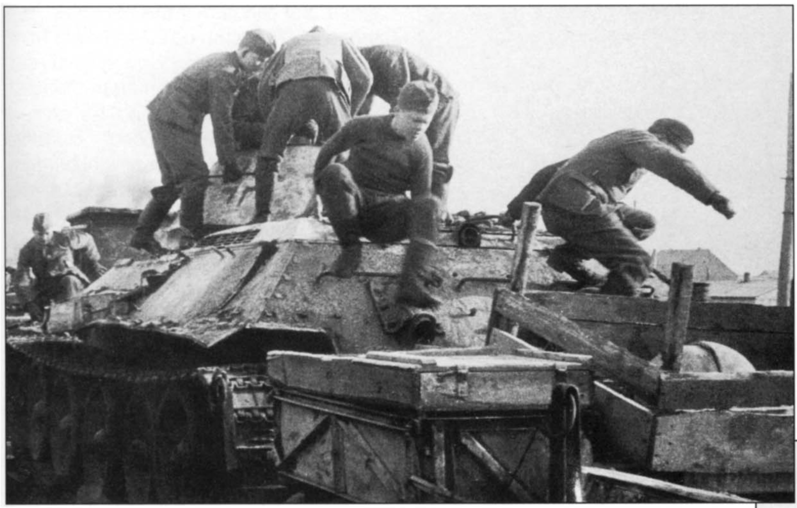
Another victim of the winter fighting — a Soviet T-26 Model 1939 captured by the Germans and then abandoned during a march due to mechanical breakdown or bad weather. The tank wears a solid coat of white camouflage and the black national cross on the front part of the turret. A similar cross was probably applied to the rear, too. Note that the tank has no additional markings. This may indicate that it was a supplementary tank in a unit.



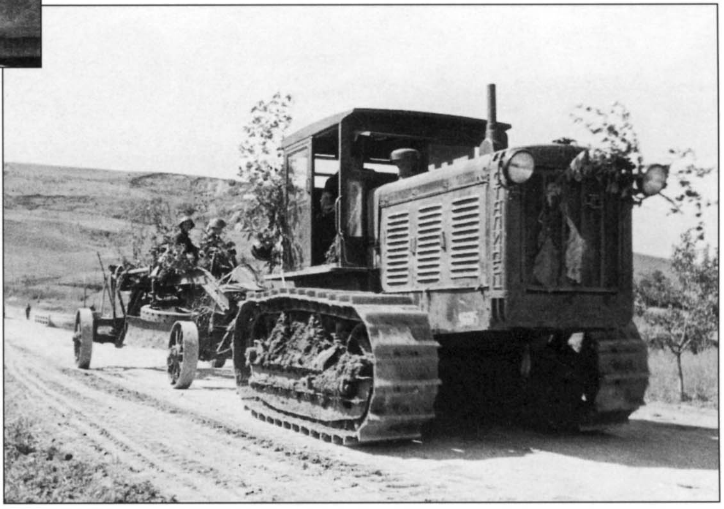
Another shot of a Pz.Kpfw. 38(t) from the same unit traveling down a Russian country road. This photo gives a good indication of the size of the tank, which was too small by German standards, making it quite uncomfortable for the crew. Note that all surfaces on the front of the tank are covered with a solid coat of mud.



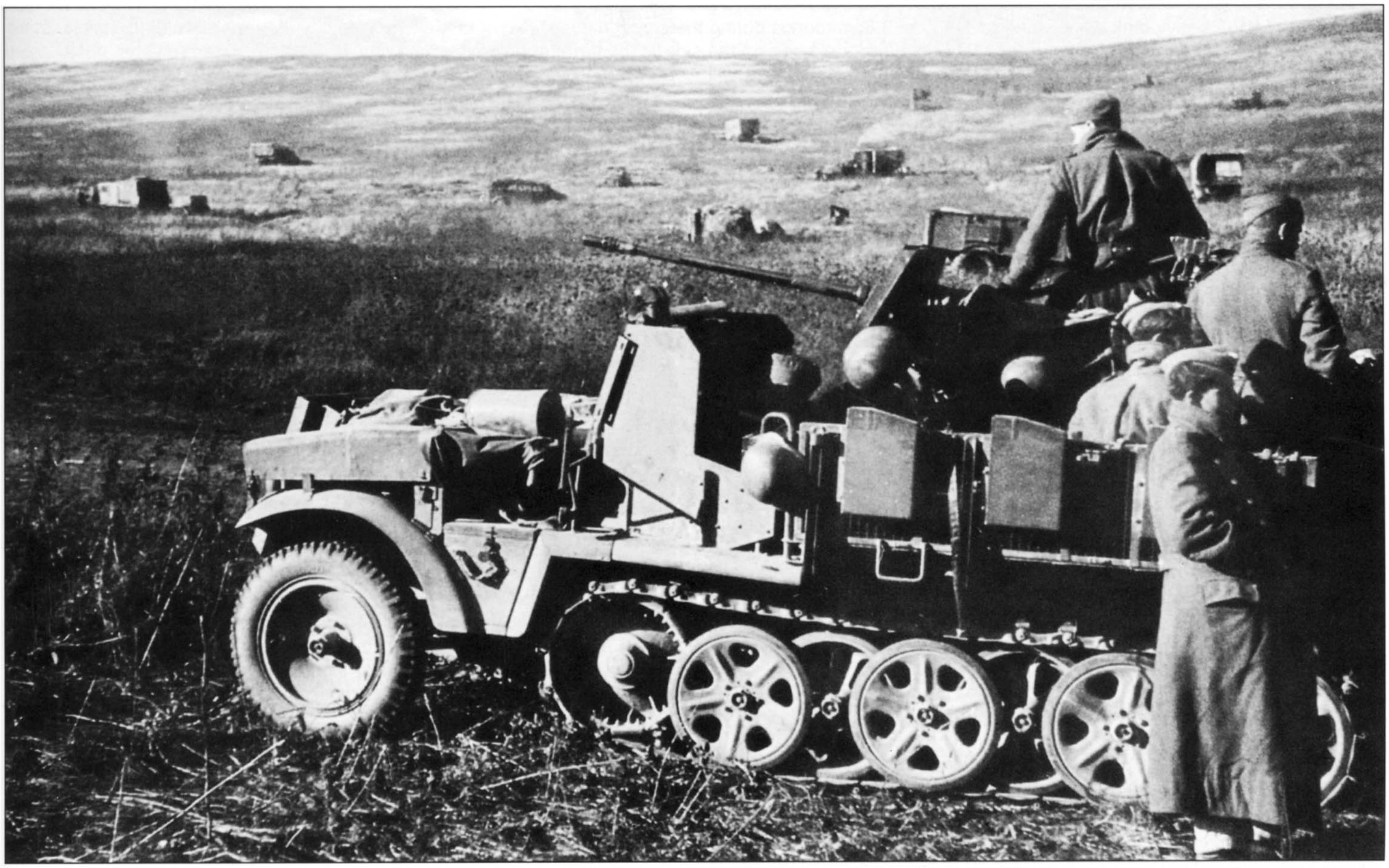
The losses incurred by the Panzerwaffe during the Soviet counter-offensive were quite heavy, especially during December, when divisions had a lot of immobilized vehicles due to the lack of fuel and spare parts. During December 1941 and January 1942, the Germans lost about 950 tanks and StuGs, about 700 of them falling victim to the Soviets in the fields west of Moscow. Among them was this StuG III, which was repaired by the Soviets then put into service. The Soviets lost no fewer than 600 tanks and self-propelled guns during these months and claimed 1,300 German tanks captured and destroyed.



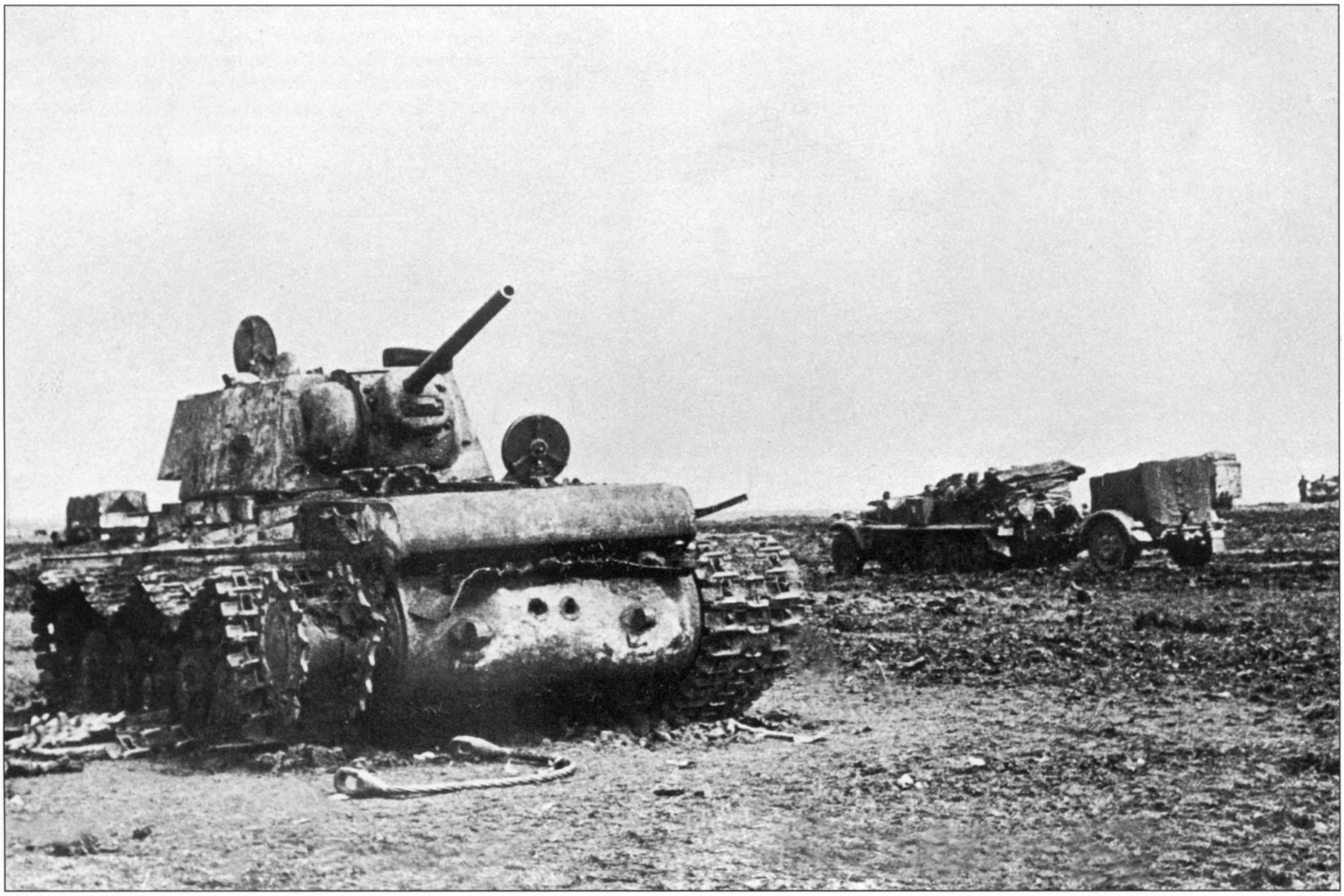
A captured T-34 tank is ready for transport by rail to the rear. The tank, which is from a pre-winter 1941 series, is covered with a thin coat of whitewash and has the German black national cross on the turret. The soldiers of the Panzerwaffe greatly appreciated the T-34, mainly due to its simplicity and good maneuverability. Therefore, this tank saw service in many German armored and anti-tank units.



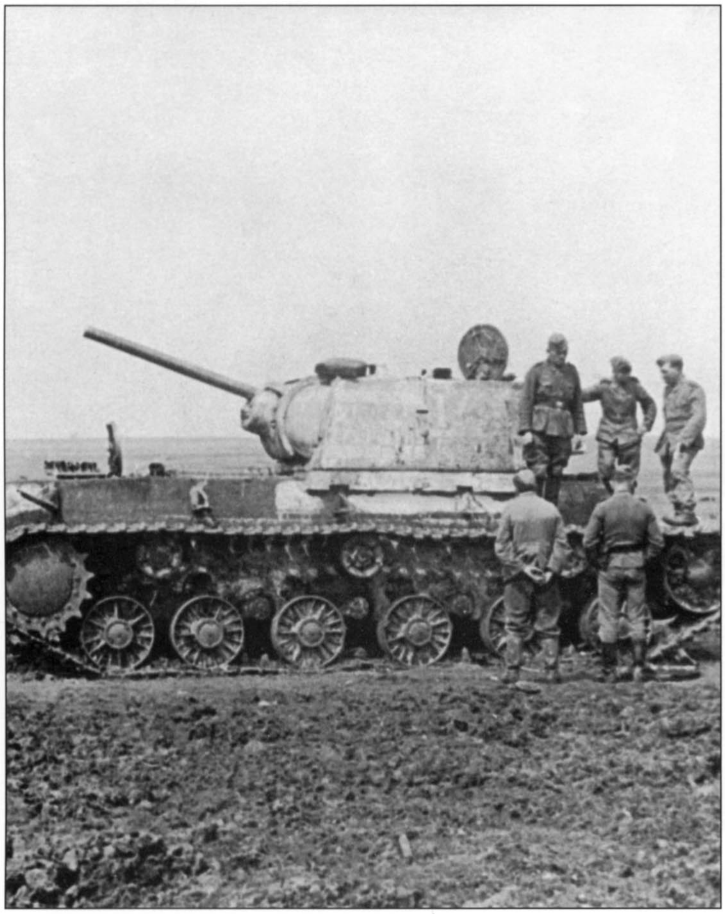
The beginning of 1942 belonged to the Soviets, who prepared their forces on the southern flank of the front for a strategic counter-offensive. One of the two main forces was placed in this area and tasked with the mission of recapturing the city of Kharkov. Though many units were equipped with new weapons, there were many others that used old ones, like this STZ-65 tractor that is towing a gun built on a chassis fitted with old-style wheels.

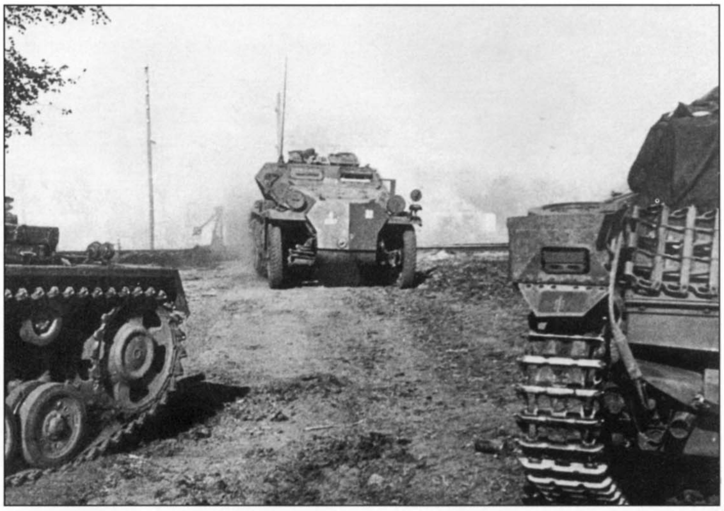


A Sd.Kfz. 10/4 with a partially armored cab and armored shield in front of the engine guards a unit's assembly area on the eastern Ukrainian steppes in the early spring of 1942. Note the binocular-type telescope installed in the driver position — a very rare piece of equipment for such vehicles, especially in this location.



A Soviet KV-1 heavy tank demolished by German 8.8cm rounds during the spring battles. Two of the hits received by the tank are clearly visible on the rear plate of the hull. There are three other hits visible, including one on the side of the turret and two near the gun mantlet.

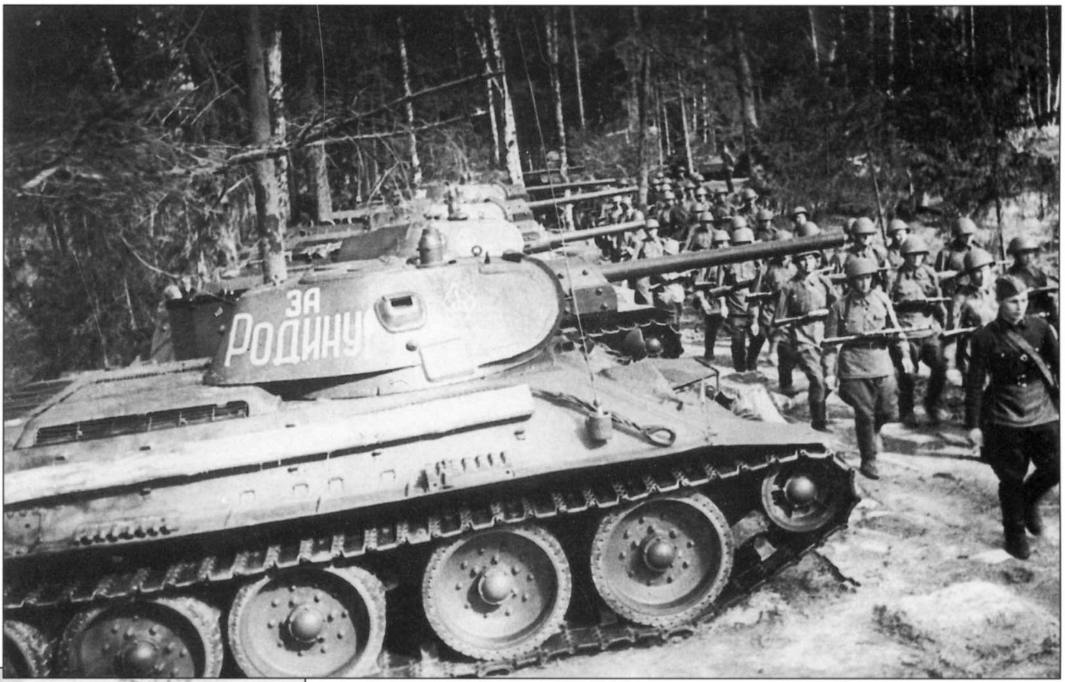


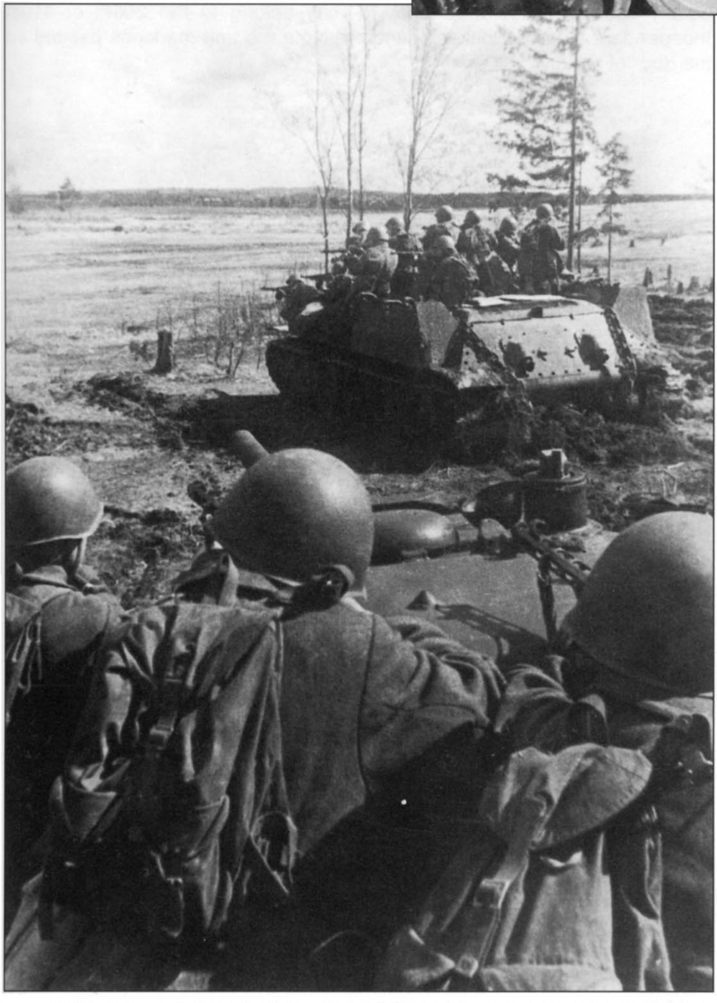


Vehicles that probably belong to 244.StuG.Abt. were photographed in action in the Kharkov area in May 1942. This unit won its fame on 14 May, when the crews destroyed 36 Soviet tanks. Parts of two StuG IIIs are visible at left and right in the photo. In the center of the photo is a Sd.Kfz. 252 ammunition carrier with its tactical sign and unit emblem painted on the frontal armored plate. Part of the tactical sign may also be seen on the StuG's mudguard at right.

In spite of the late spring season — at the beginning of May — this KV-1 still wears the remains of its whitewash camouflage. On the left side of the turret is a lengthy inscription with tactical markings, also in white. As with many other Soviet tanks, this KV-1's mudguards were cut off for front-line service.

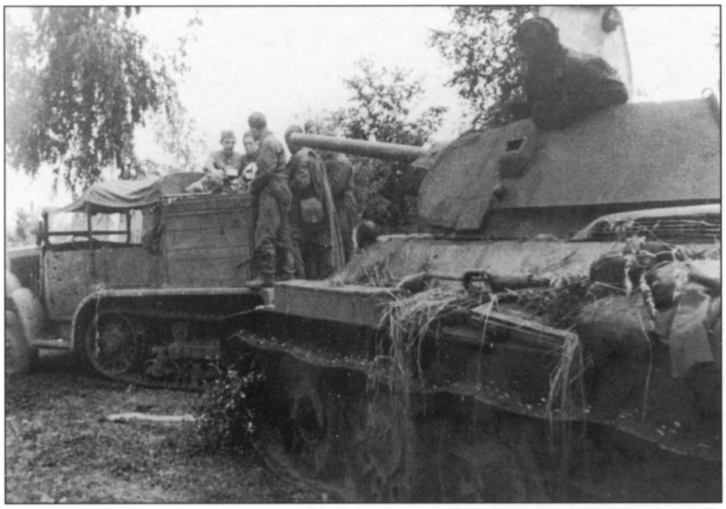
The Red Army marches into battle in May of 1942. The nearest T-34 bears the inscription "For Fatherland" and tactical markings in the rhomboidal outline ("1" on the top and probably "049" or "045" on the bottom), both painted in white. The South-West Front, which was involved in the fights for Kharkov, was well equipped with armored units; there were 22 brigades, three regiments and one battalion with about 800 tanks at the beginning of Kharkov operation. Unfortunately for the Soviets, staffs of this Front could not use these units successfully.



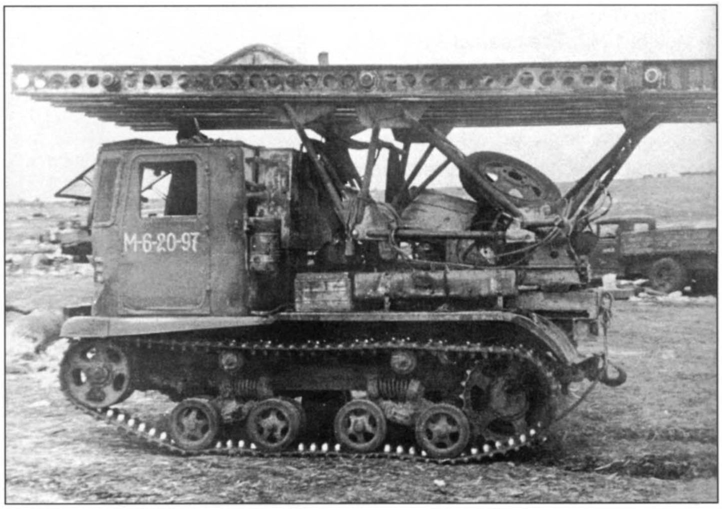


There was only one half-tracked APC designed for the Red Army, the B-3, but it was not produced. So, from the beginning of the war the Soviet infantry had to be transported on tanks, even during assaults. This tactic usually resulted in heavy losses. Therefore, by the middle of the war, mainly convict units were used for such missions. This photo, which was probably prepared for propaganda purposes, shows an attack of a unit that was famous for its T-34 Model 1941 tanks, which were camouflaged in dark green and light brown. The 4th Guards Tank Corps from the South-West Front used the code "L2-IS". The tank seen in the background is a special version of the T-34 Model 1941 equipped with a loudspeaker used for psychological warfare. Note the large chains on the rear of hull — it is difficult to say why they were carried.

A tank unit holds one last political meeting before battle. The Red Army had no chance of military victory over the Germans in the field for many reasons. In the armored forces one big reason was the lack of radio equipment. Another was the poor quality of leaders, who needed to follow orders and not think. There is an inscription painted on the turret of the KV-1 seen in the background, but it is illegible.

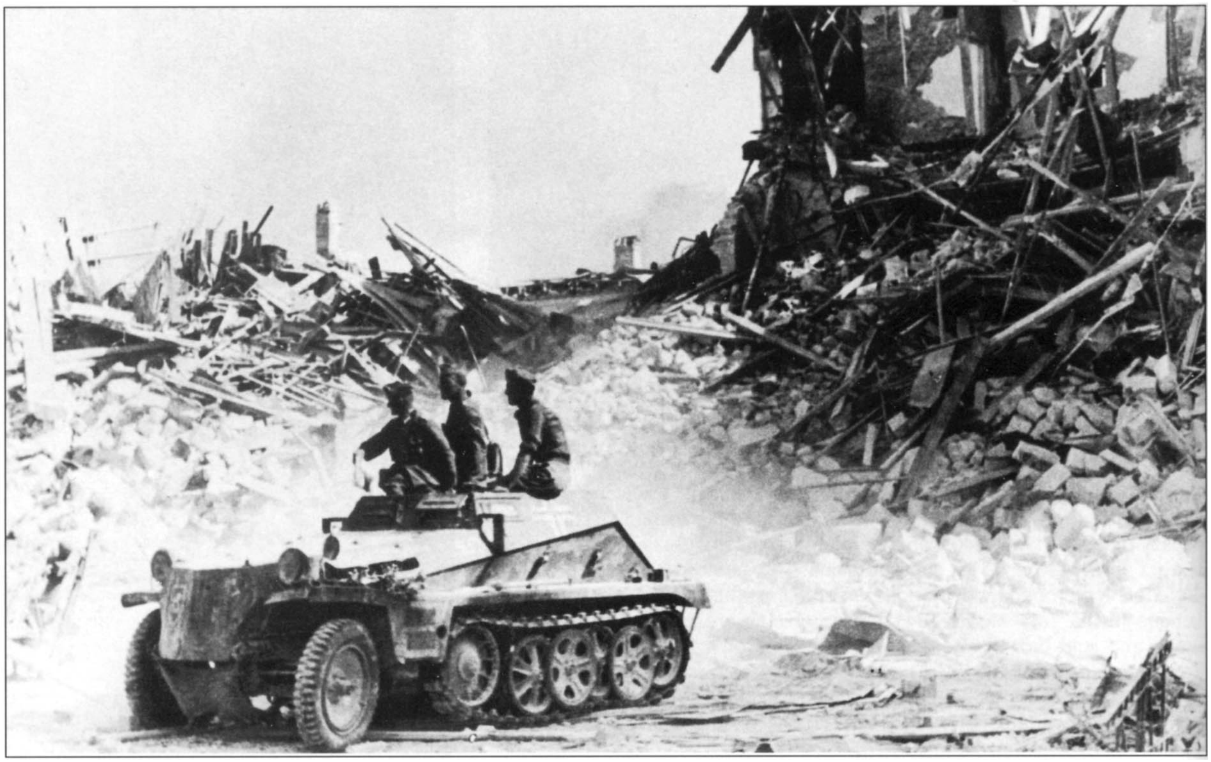


The first Soviet attacks toward Kharkov resulted in some success: the Germans were repelled and the Red Army captured terrain. They also confiscated some weapons and vehicles, like this Citroen Kegresse, which was captured by the Germans in France in 1940 and re-designated the Unic P-107. The T-34 Model 1942 in the foreground is typical of the series from this period; their construction was as simplified as possible.



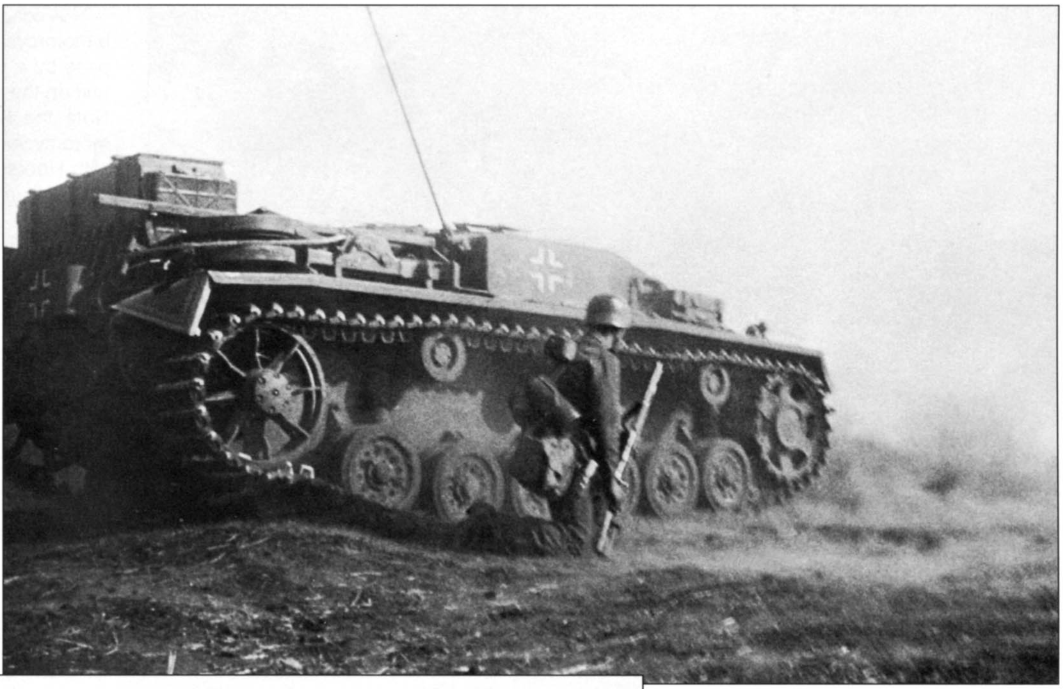
One of the rarer vehicles — the BM-13-16 missile launcher installed on the STZ-5 tractor chassis. The "Stalin organ", which was usually installed on a truck chassis or obsolete combat vehicle, could launch 82mm (M-8) or 132mm (M-13) missiles with, respectively, 3-kg and 18.5-kg warheads at ranges of 5.5 km (3.4 miles) and 8.5 km (5.3 miles). This vehicle was captured by the Germans when they eliminated the Soviet troops in the deadly cauldron east of Kharkov. It may belong to the 206th or 110th Independent Guards Rocket Squadron. Note the unit markings painted on the door of the cab.

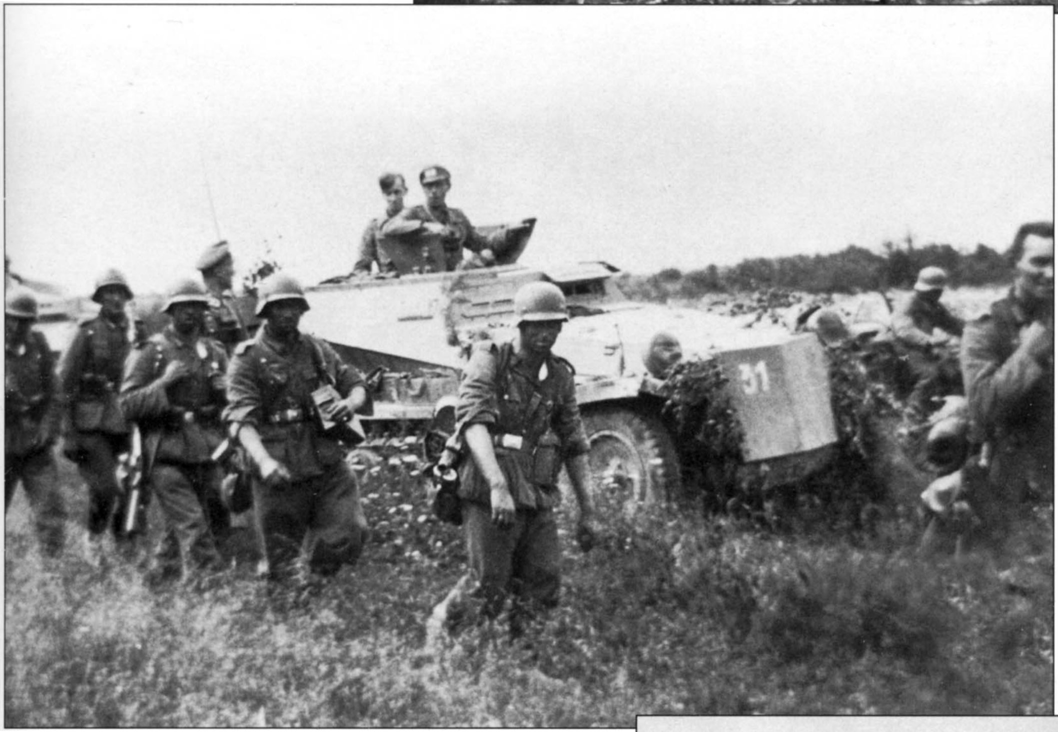
Gefreiter Georg Rietscher, commander of a PAK 38 anti-tank crew that destroyed seven tanks and damaged two others within minutes in the fight for Kharkov in the spring of 1942. He was decorated with the Ritterkreuz (Knight's Cross) for this success.



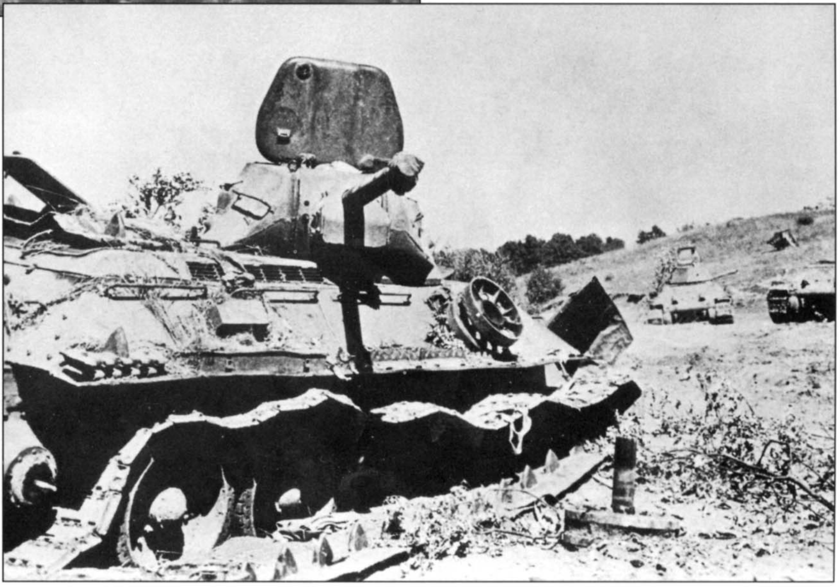
A Sd.Kfz. 252 from 190.StuG.Abt. travelling through the streets of Sevastopol passes by demolished houses. The half-track wears the unit emblem on the front plate and the three-digit tactical number on the side, under the open driver's hatch. The siege of Savastopol began on 6 June and ended on 2 July, with the Soviets evacuating by sea to the Caucasus.

This StuG III was photographed while firing at an enemy target. Note the road markings on the rear mudguard. There were more StuG.Abt. on the Eastern Front during the summer campaign of 1942 than in the previous year. They were used more intensively mainly because small StuG units were better in defensive combat than the large divisions that fielded about 100 tanks and a few hundred vehicles.

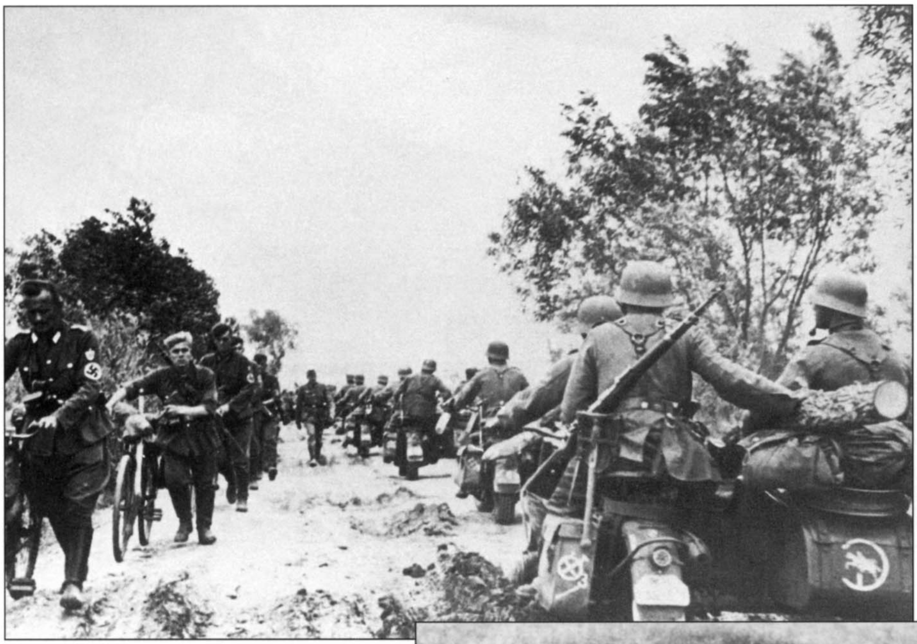




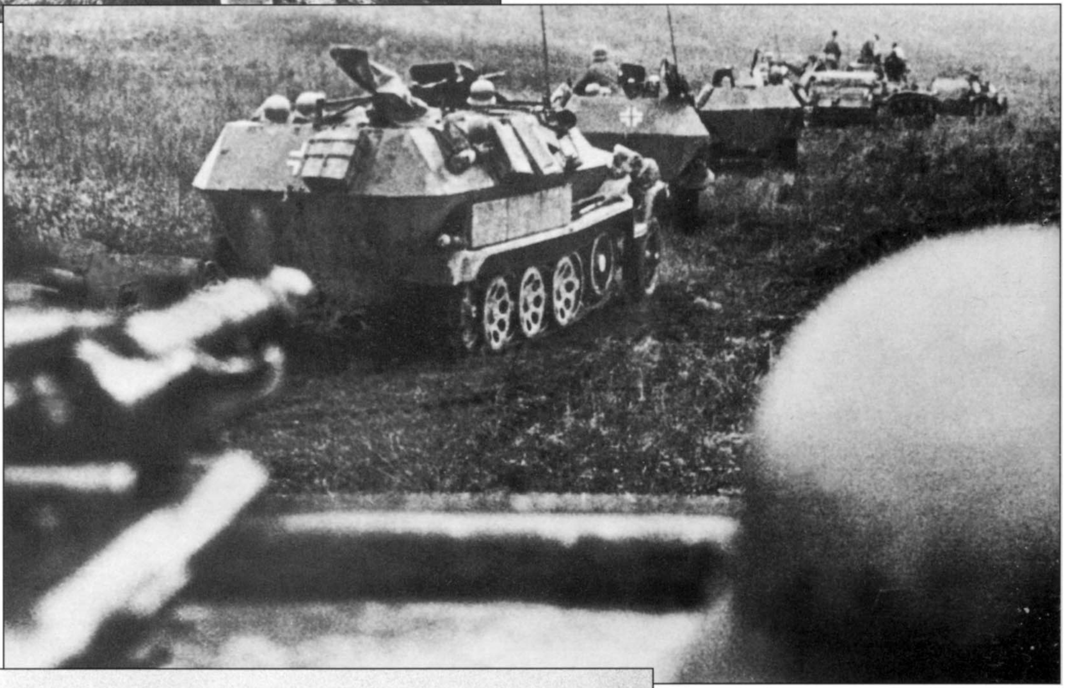
The Sd.Kfz. 253 Beobachtungskraftwagen (observation post) was used in the StuG.Abt. at company and battalion levels for directing the fire of StuGs. In 1942 they were replaced by standard StuGs, which could participate in combat and not be limited to service as a command/observation post. Note the markings on the half-track — the tactical number "31" appears on the front armored plate, and a large white cross is painted on the superstructure's upper side plate.



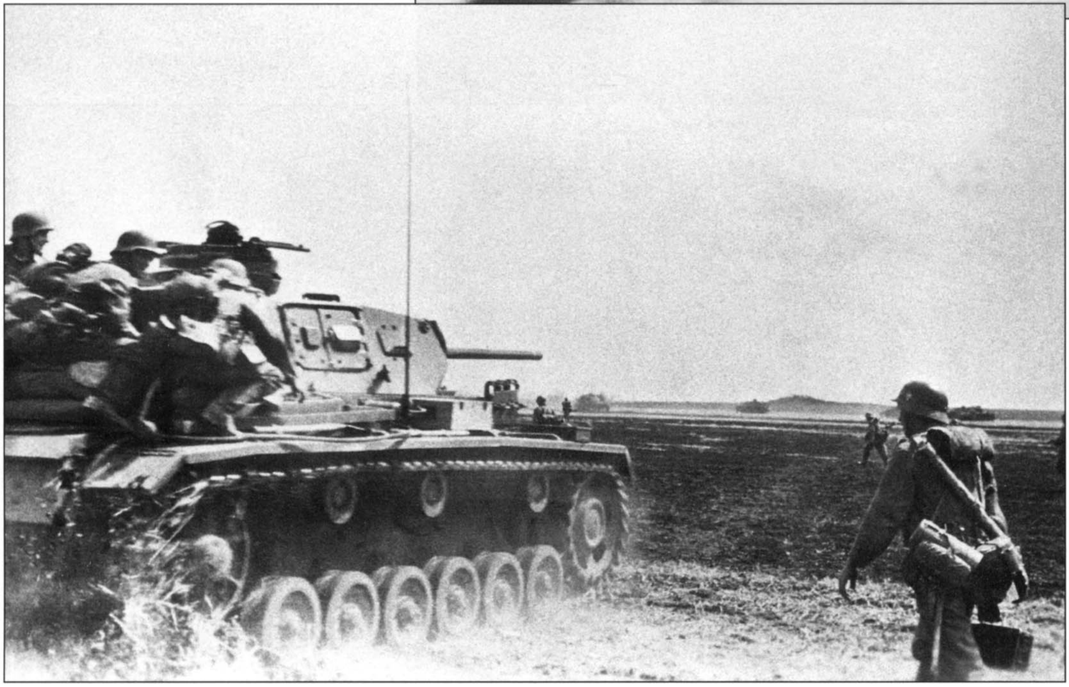
Vivid results of the German anti-tank defense during the battles of May-July 1942 — three T-34 tanks that were shot to pieces. With the beginning of the front-line service of the new German 7.5cm long-barreled guns, the Soviet tanks began to be less of a problem for the German gunners than during the early weeks of "Barbarossa". While the PAK 40 gave superiority to the German anti-tank troops, the early Pz.Kpfw. IV's long-barreled gun, the KwK 40 L/43, provided only a slight superiority over the Soviet guns, which means that there was a balance in actual combat. However, the Germans were able to win duels and group combat due to their superior optical equipment and tactics.



A column of BMW motorcycles from 3rd platoon of a motorcycle infantry company from 24.Panzer-Division pass by a column of an RAD (German Labor Service) unit on the march to Voronezh at the end of June 1942. Note the log stacked on the sidecar of the nearest motorcycle. Operation "Blau" opened on 28 June 1942 with Heersgruppe Süd assaulting the city of Voronezh on the Don river.

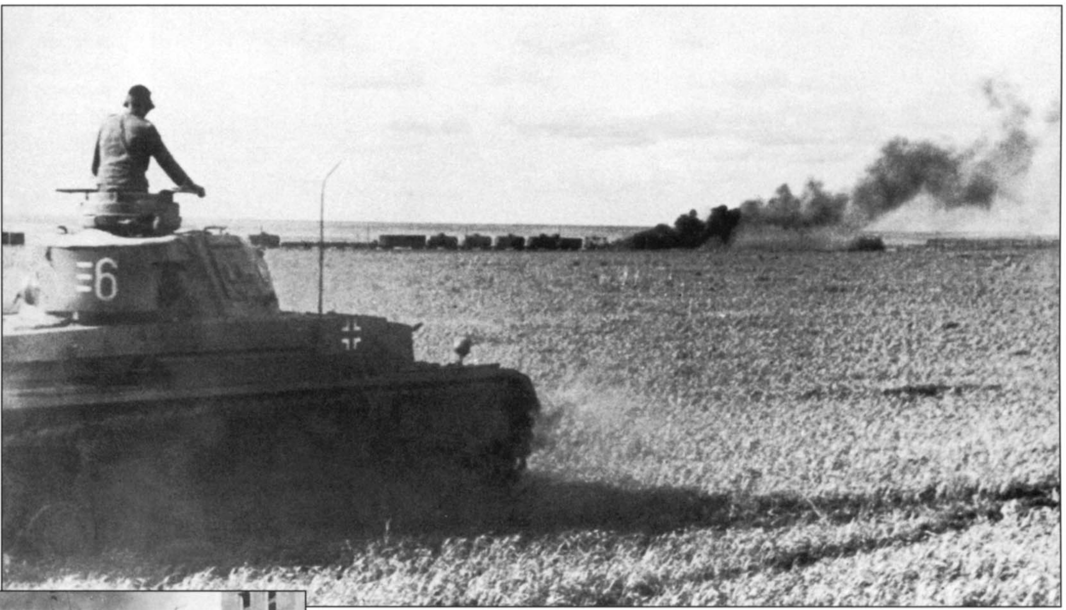


The armored force of a Panzer division equipped with Sd.Kfz. 251s and Pz.Kpfw. IIIs march on the enemy's rear located across the steppes. The second summer offensive in the Soviet Union began with the assault toward Voronezh with nine armored and five motorized divisions, with Inf.Div. (mot.) "Großdeutschland" and 24.Panzer-Division in the lead.



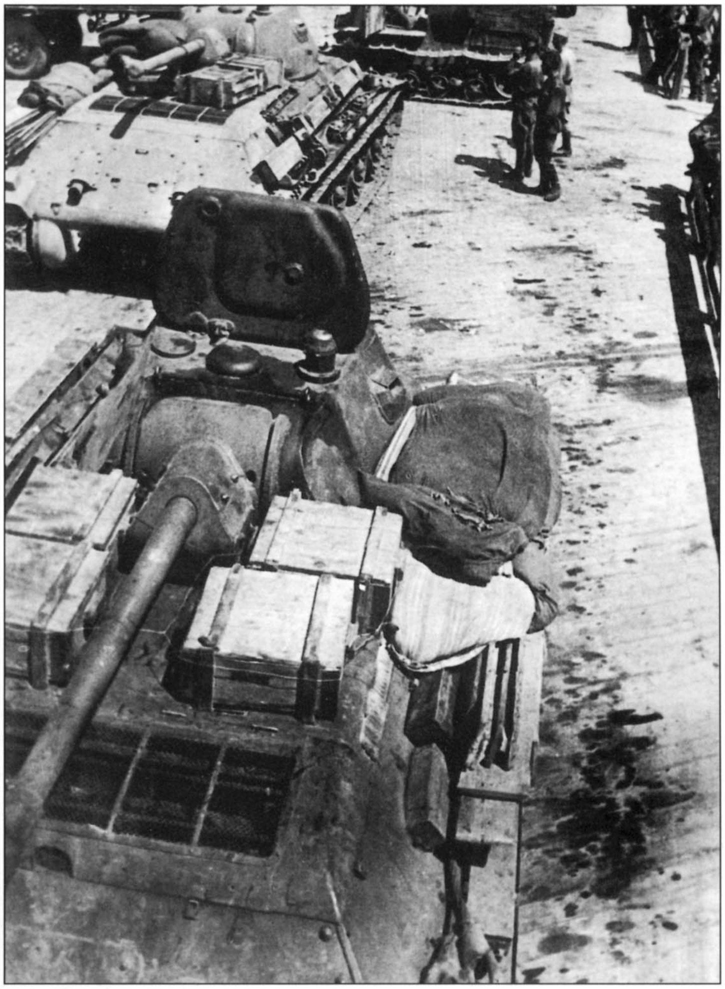
A Pz.Kpfw. III late Ausf. J or early Ausf. L from Pz.Ar.4 attacks an enemy position. The raid of the XXIV Pz.Kp. on Voronezh ended on 5 July when the city fell into German hands . . . but that was not the end of the battle around Voronezh. In fact, it continued up to September and was one of the three largest armored battles fought that season. During the first phase of this battle XXIV Pz.Kp., along with supporting infantry divisions, smashed five armored corps of the Red Army.

A Pz.Kpfw. IV Ausf. D from Inf.Div. (mot.) "Großdeutschland" scores a hit on a Soviet train crossing the steppes west of Voronezh. The markings on the stowage box are typical of the "Großdeutschland" Division. This unit had only one tank battalion with three companies. The three horizontal bars indicate a particular company and the number specifies a certain vehicle in the company. Together with 24.Panzer-Division this elite unit of the German Army captured Voronezh and then beat off continuous counterattacks by 25th Tank Corps from the northeast and 18th Tank Corps from the southeast.

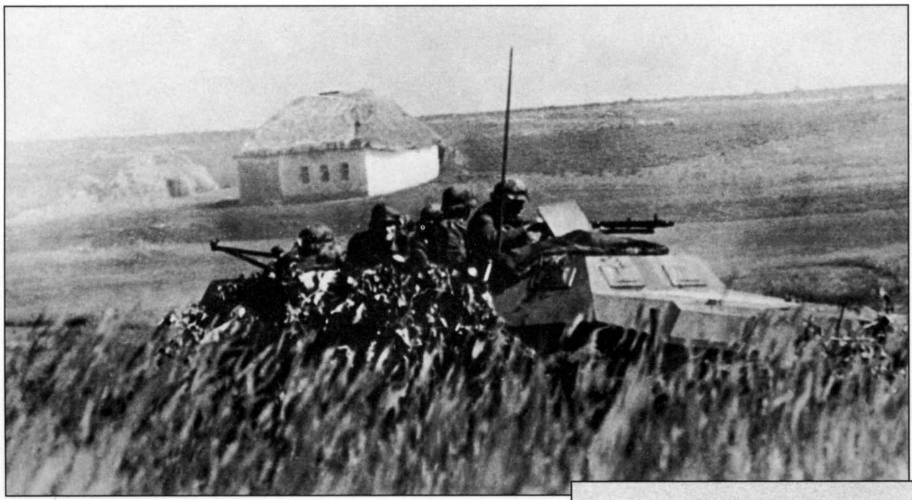


Soviet infantry recaptures a street during the fighting in Voronezh. This photo was described as being taken in Stalingrad during the war, but it is more probable that it shows the battle for Voronezh. It is hard to believe that this apparently staged propaganda photo could be taken in the city since the Soviet troops held a bridgehead that was only a few hundred meters long on the west bank of the Volga river.

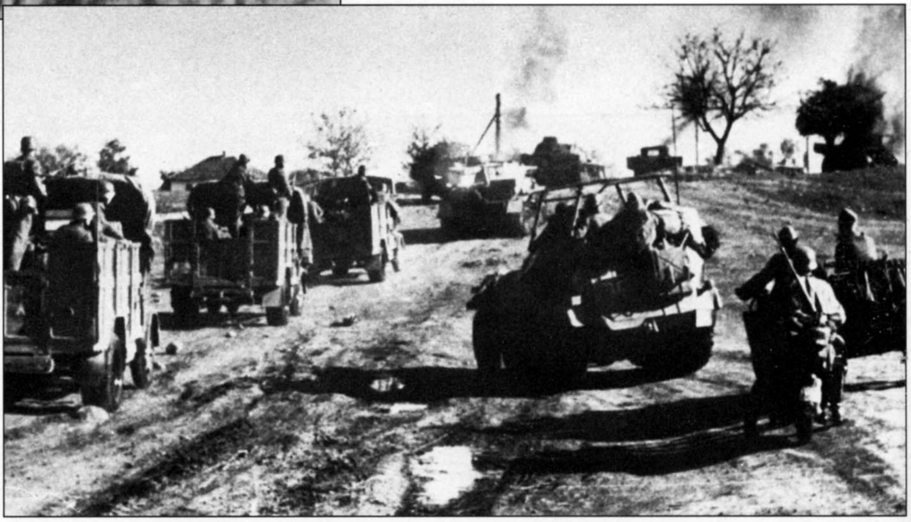
It was common in the Soviet Union to see two columns of German vehicles sharing one road, one heading towards the front line and the other going to the rear because of the lack of a good western European-type road network. This often created problems in the transport of supplies. The lack of trucks and supplies expanded this problem. As a result, tanks of Heeresgruppe B suffered a number of failures in July and August of 1942. Here we see a typical sight of two columns of various vehicles crowded onto one narrow country road.



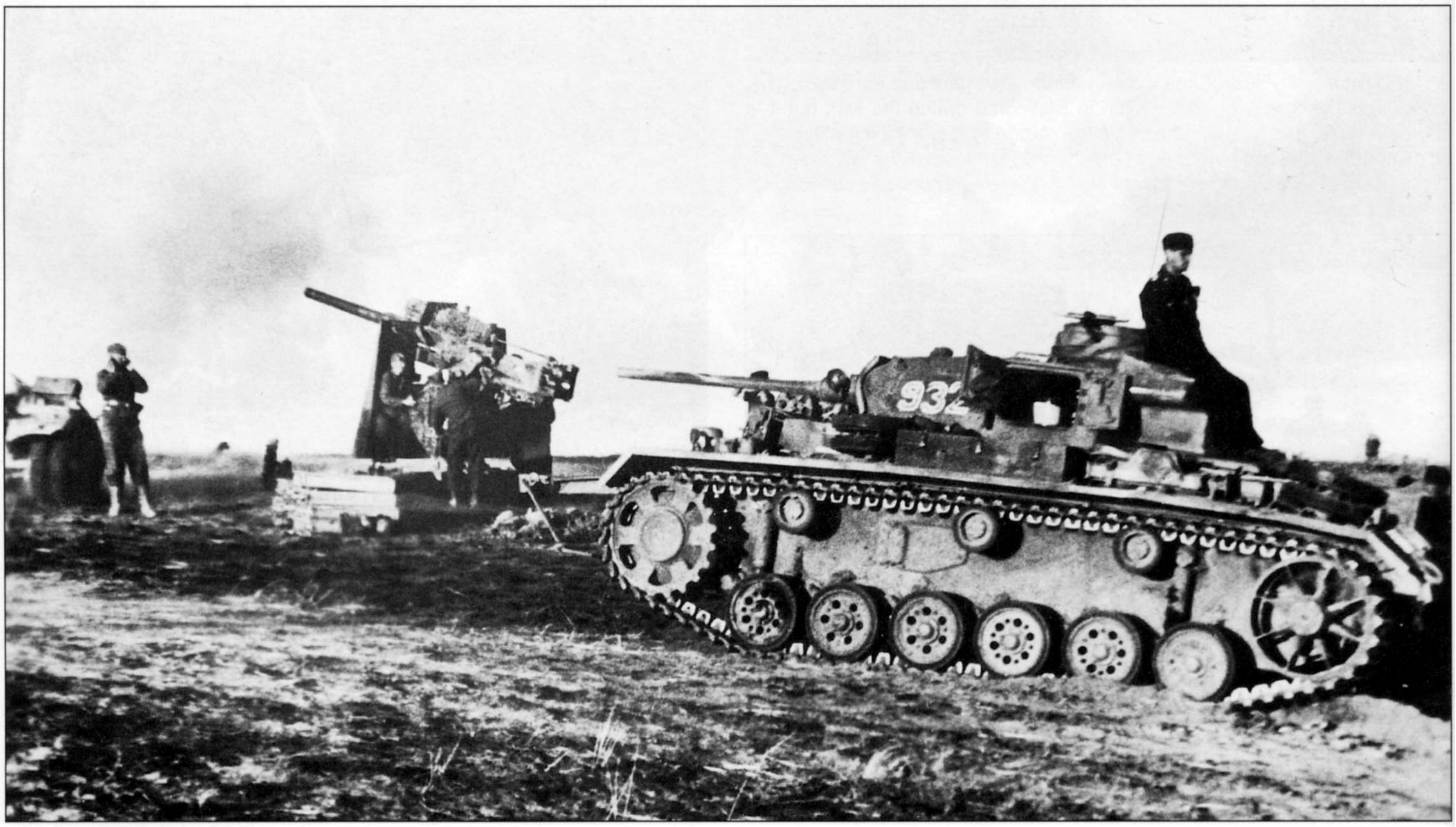
The Soviets constantly sent new armored units and supplies to the front and still counterattacked as July turned to August in the Voronezh area south of Rzhev and in the Don bend. Their tank units suffered heavy losses during these fights. Here T-34 Model 1941 tanks are prepared for transport to a combat area. On the engine decks are wooden boxes with additional ammunition. Other pieces of equipment are stored all around the superstructure. Note that the access panel in the rear plate over the transmission is of a rectangular shape, indicating that this is the 1941 model. It is important to remember, though, that following the overhaul of damaged tanks the old superstructures were used to build new Model 1942 or Model 1943 tanks in the second half of 1942, and even into 1943.



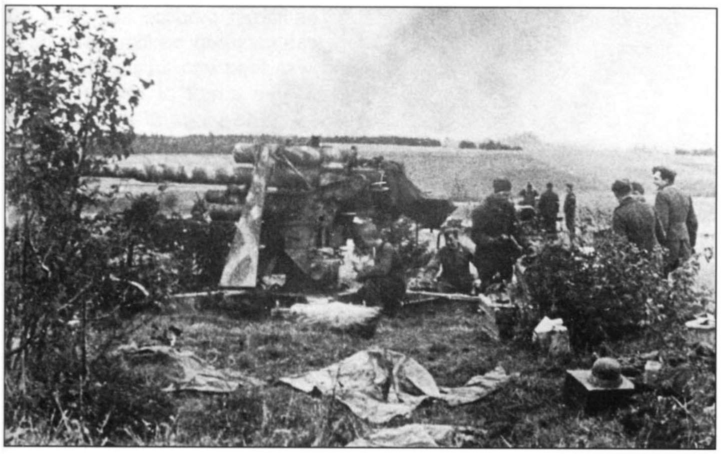
In July of 1942 the Germans entered the Kuban steppes and then advanced towards the Caucasus mountains. There was no heavy fighting until they reached the Soviet defense positions in the Caucasus, so the German divisions had to cover hundreds of kilometers in difficult weather while struggling with vehicle breakdowns and the lack of fuel. Here a Sd.Kfz. 251 crosses the steppes through a field of high grass, the only type of cover available in the Kuban steppes.



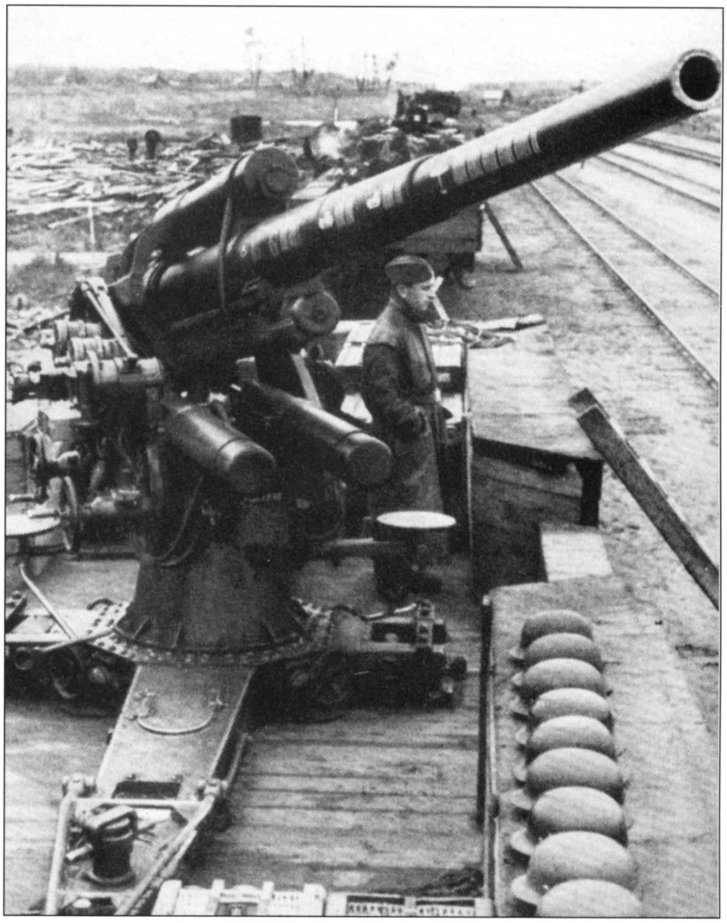
A column of troop transport trucks prepares to follow a couple of Pz.Kpfw. IVs involved in combat with enemy vehicles close to the Caucasus. At the right in the photo is a Sd.Kfz. 250/3 communication carrier fitted with a frame antenna and heavily loaded with the belongings of the crew members. Note the Eiffel tower, the unit emblem of 23.Panzer-Division, painted on the truck at left. This model of truck was quite rare at this time since it had been replaced by the standard model of the 3-ton truck.



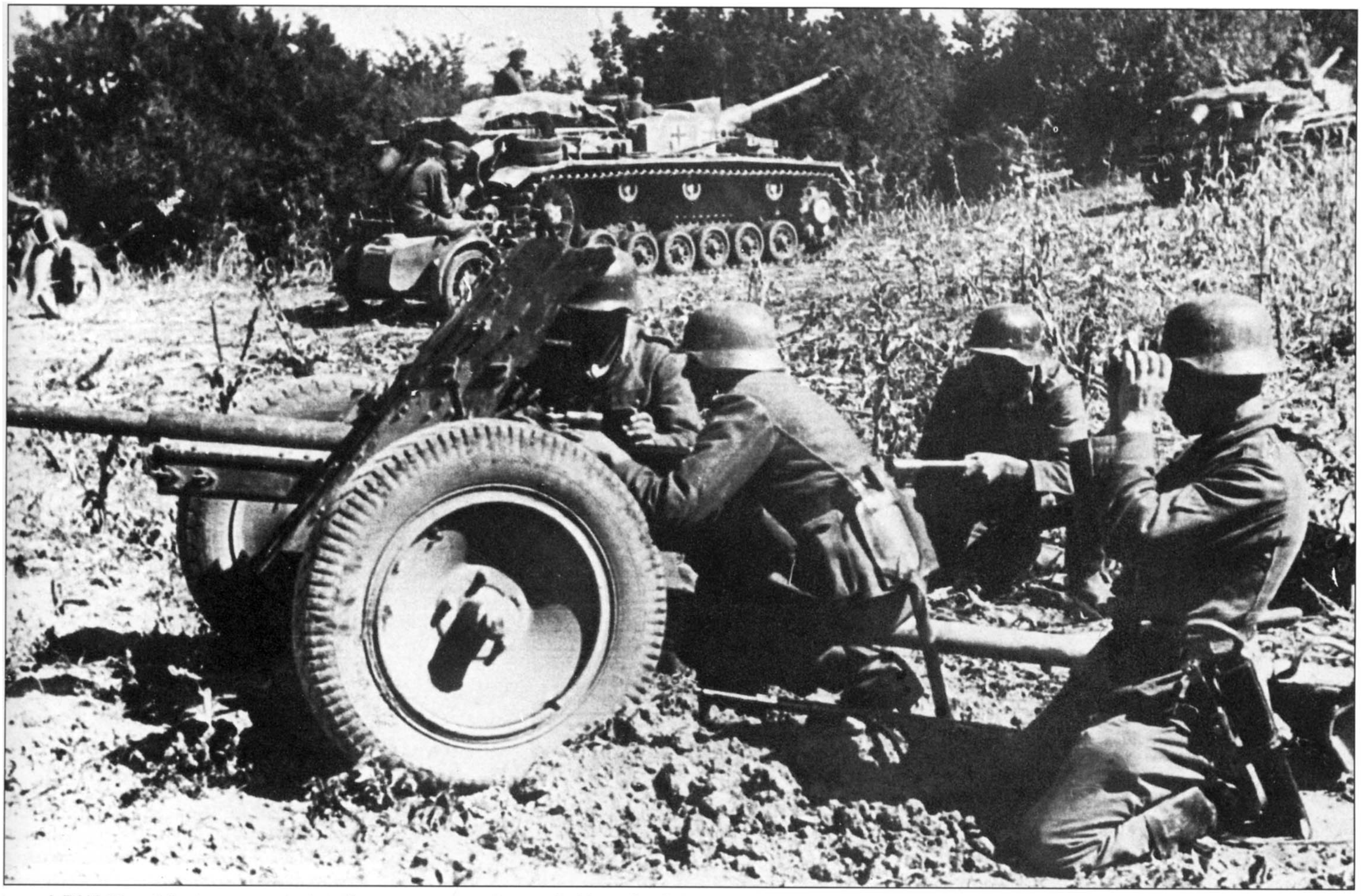
When enemy counterattacks were too strong, the 8.8cm batteries replaced tanks at the first line of defense, repelling all of the Red Army's tank assaults. This photo shows a weak German tank unit being supported by Flak 36/37 guns. Note that the Pz.Kpfw. III is camouflaged with a green pattern (most clearly visible on the commander's cupola) supplemented with a few patches of dark yellow color (note the gun barrel, jack and signal light on the front part of the mudguard).



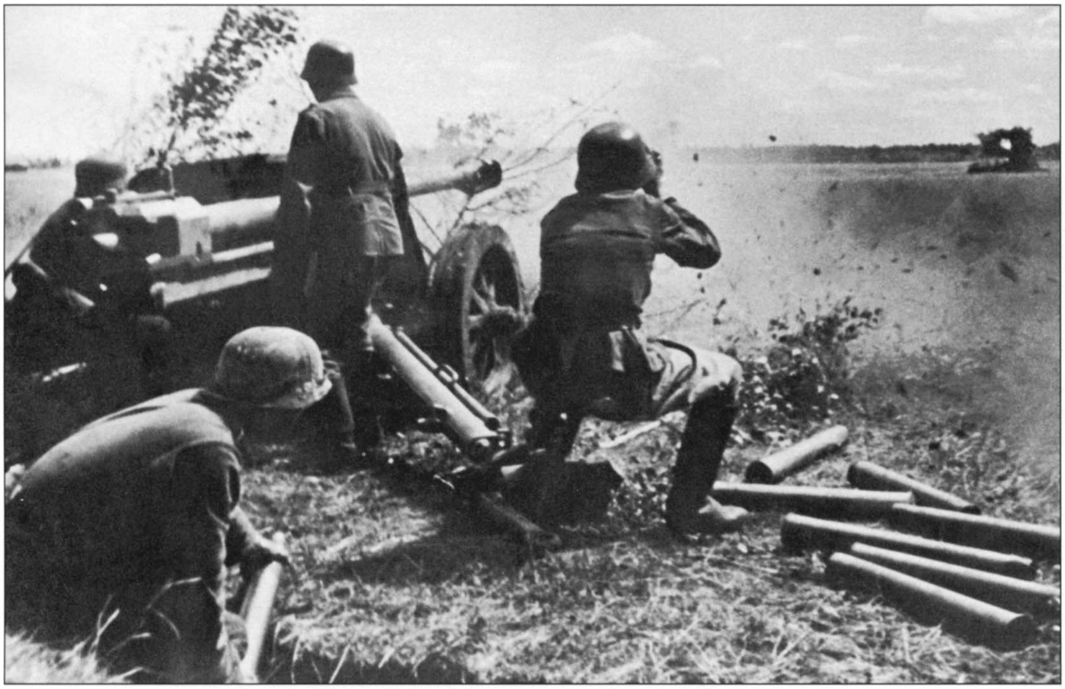
In the late spring of 1942 the Germans introduced the new paint colors used to cover heavy weapons and vehicles: dark yellow and green. The dark yellow color had been the standard background paint for AFVs since the late summer of 1942, while the green, and later brown, had been used only as supplementary colors. Here a 8.8cm gun is seen in action. It is painted in a two-tone camouflage composed of a dark yellow pattern over a dark gray background. This is the second model of the 8.8cm gun, the Flak 36/37, which had a higher muzzle velocity than the Flak 18 model.



The front-line units equipped with 8.8cm guns and supported by "Flak trains" could often inflict tremendous losses on the Soviet troops. The longer range of the 8.8cm guns was especially useful on the wide, flat steppes. Here we have a shot of a railway flatbed acting as a Flak platform. The low walls were originally designed as a cover for the gun crews. The markings on the gun barrel indicate the victories achieved by this gun: 22 aircraft shot down, 17 tanks of two different types destroyed, 11 infantry attacks repulsed (marked with German Infanteristurmabzeichen, or infantry assault badges) and 6-7 strong-points destroyed.

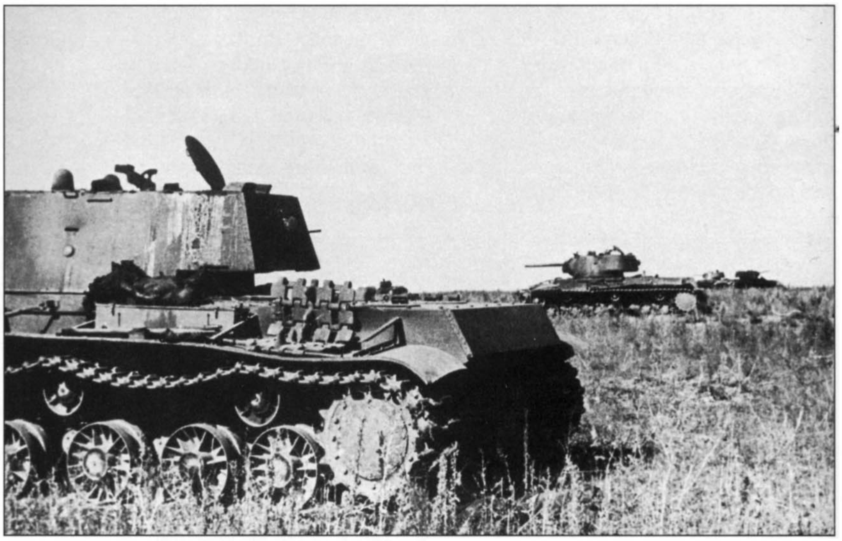


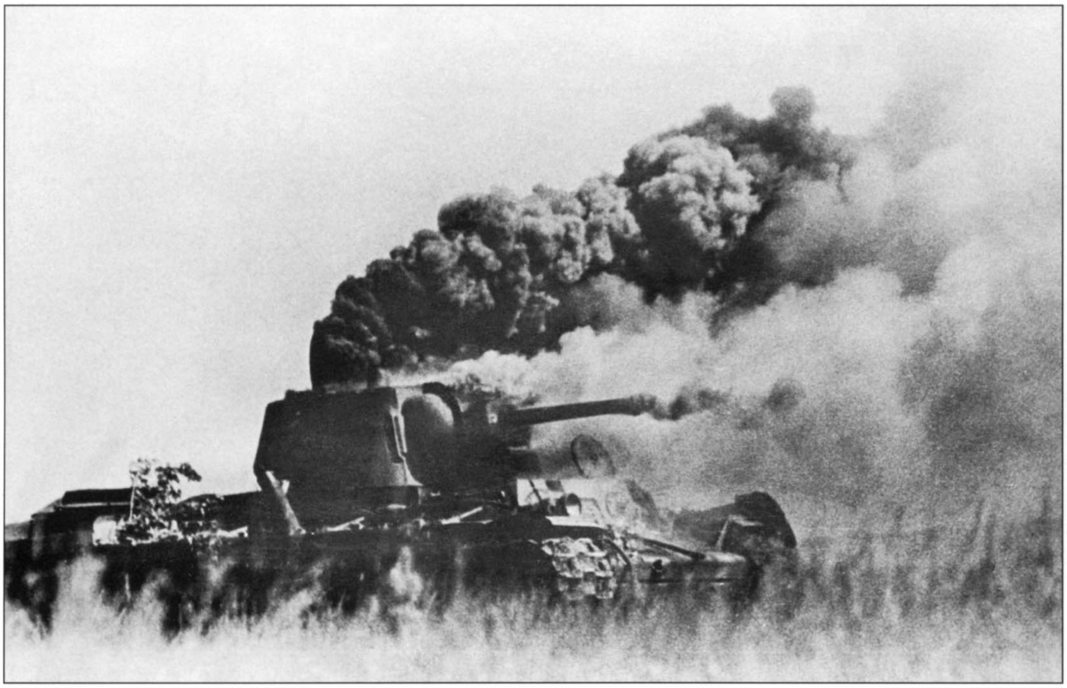
A PAK 36 anti-tank gun combat station covers a road occupied by a StuG.Abt. equipped with StuG III Ausf. F/8. The StuG seen in the center of the photo features the non-standard markings used by this unit for vehicle identification. Usually StuGs carried number codes, but this StuG wears the white letter "F".



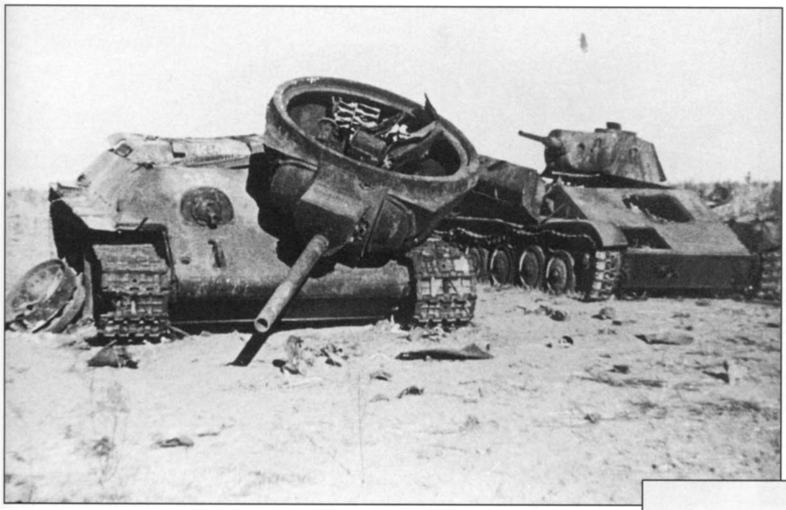
The target practice of a PAK 40 crew was captured on film just after a round was fired into an abandoned T-34 tank, the target of choice for the exercises. The range of this shot was about 500 meters (546 yards). At that distance any Soviet tank would be helpless against the powerful armor piercing rounds fired by the PAK 40.

Seen here are the results of German anti-tank gun fire — four KV-1 heavy tanks that were destroyed while charging enemy strong-points. Note the shapes of the turret and superstructure; due to the necessity of production simplification they are sharper than those from the 1941 series. The second tank in the background has a simplified superstructure and the new cast turret.

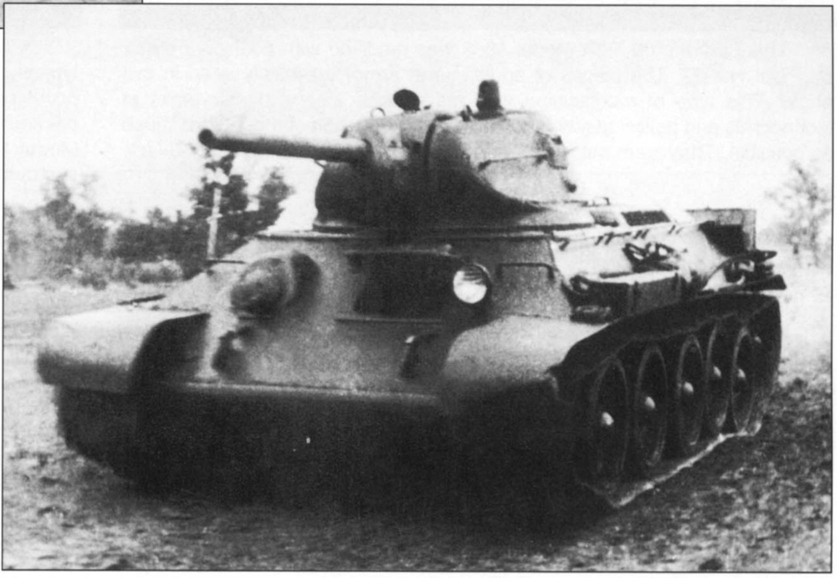




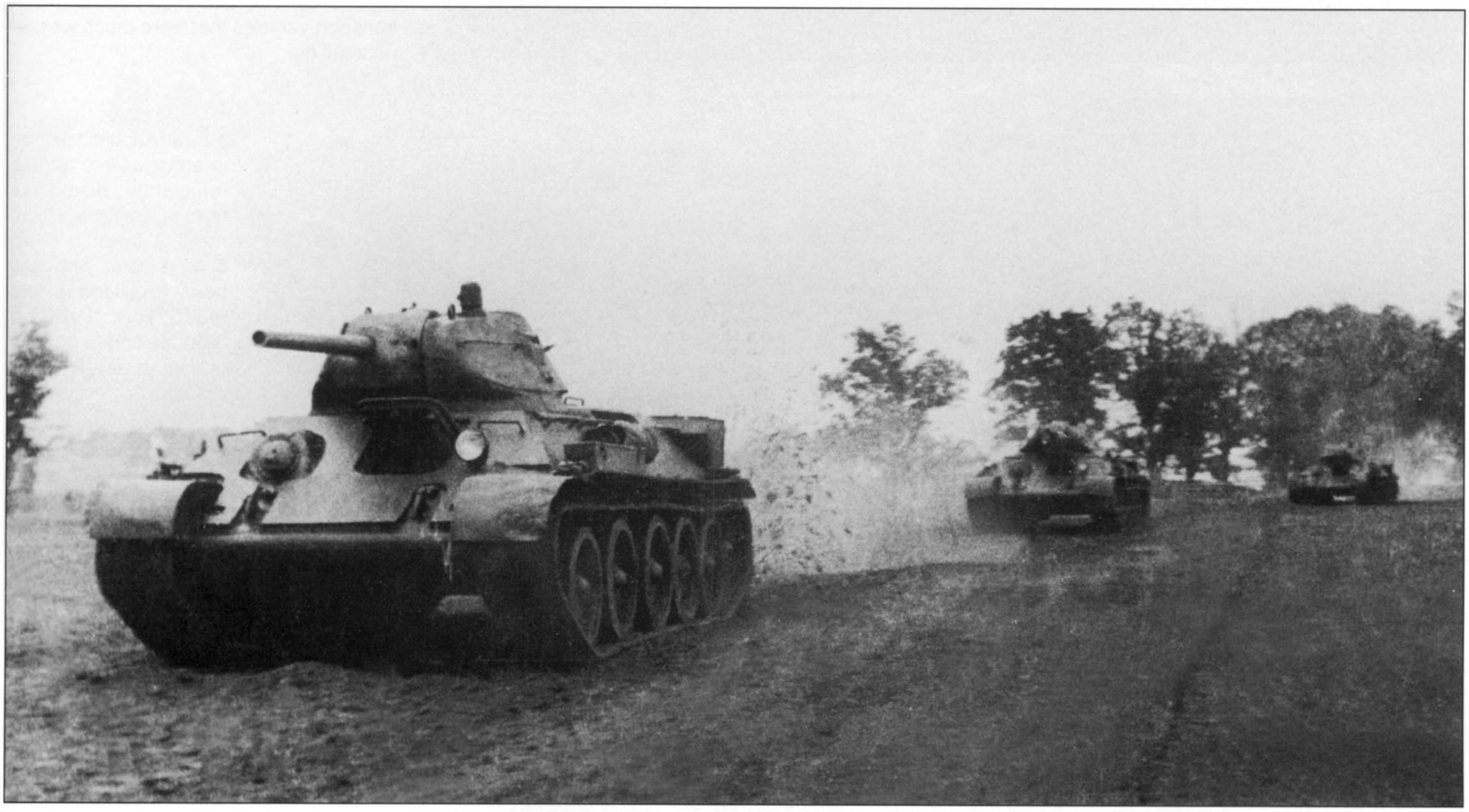
Billows of smoke pour from another KV-1 after taking a direct hit from an anti-tank gun. The engines of the Soviet main tanks were propelled by oil, so the fires spread more slowly at first than in an M4 Sherman, for example, which would be consumed by flames within minutes. However, when the fire warmed up the oil, Soviet tanks burned long and intensively, and the possibility of extinguishing the fire was smaller than with tanks with fuel engines.



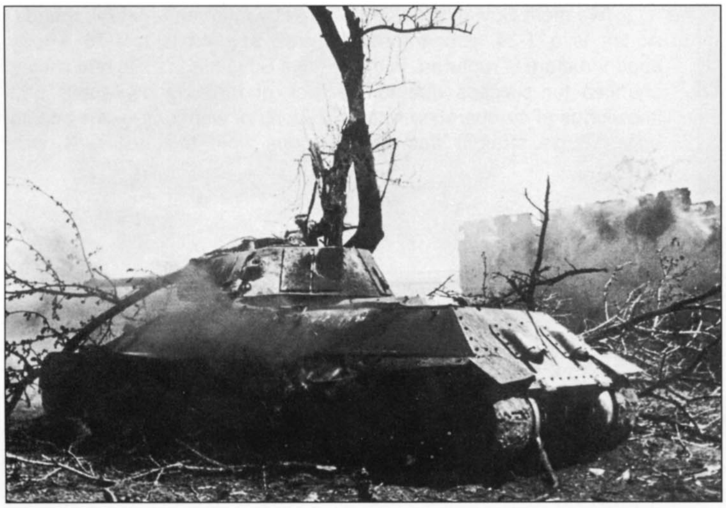
Two more Soviet tanks demolished by German anti-tank rounds. At left is a T-34 with a torn-off turret; at right is a T-70 whose superstructure is ruptured. In those days Soviet tank units had limited chances for success due to the lack of radio, good tactics and knowledge of co-operation with other sorts of weapons — they could only charge straight into enemy guns until the last tank was



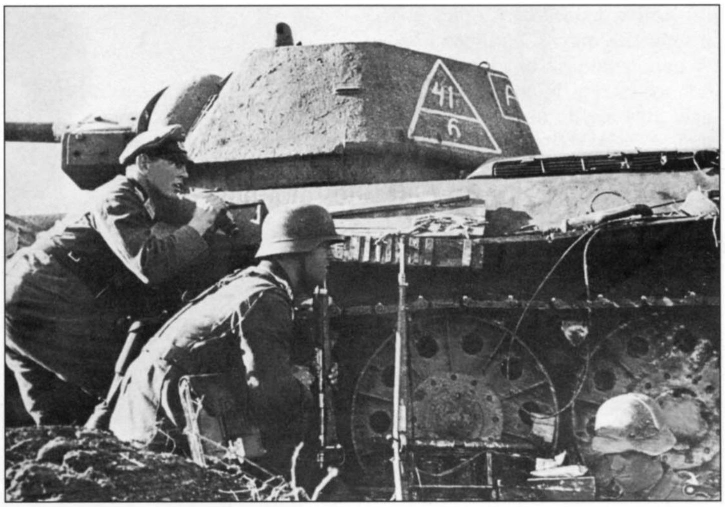
Prior to the winter of 1942, the main version of the T-34 in Soviet tank units was the Model 1942 with the old type of turret and often featuring additional fuel tanks. There were still Model 1941 tanks in service, but few of them were involved in front-line action. The T-34 seen in this photo was built (or repaired, or even re-built) by Plant No. 112. The tank is distinctive due to its many infantry handles.



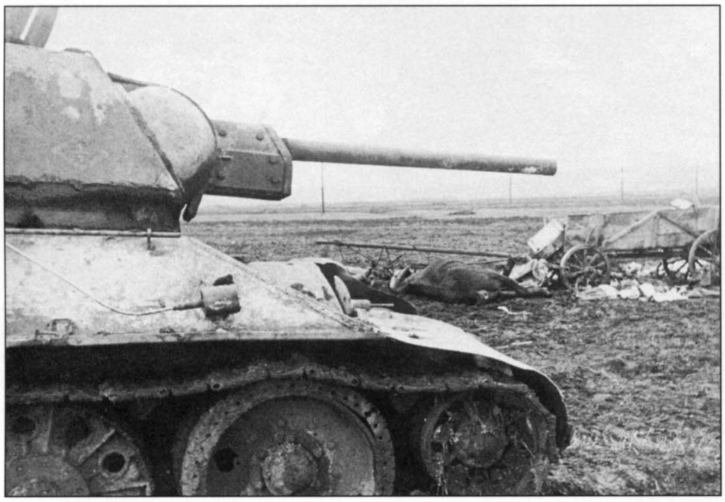
Another shot of T-34s from the same unit shows more T-34 Model 1942s produced by Plant No. 112. The lead tank has appliqué armor (about 30mm [1.25 inches] thick) welded onto the glacis front. Two factories made this modification: Plant No. 27, which produced such armor plates in 6 pieces for glacis and another for the turret, and Plant No. 112, which produced these additional plates in one piece on the glacis only.



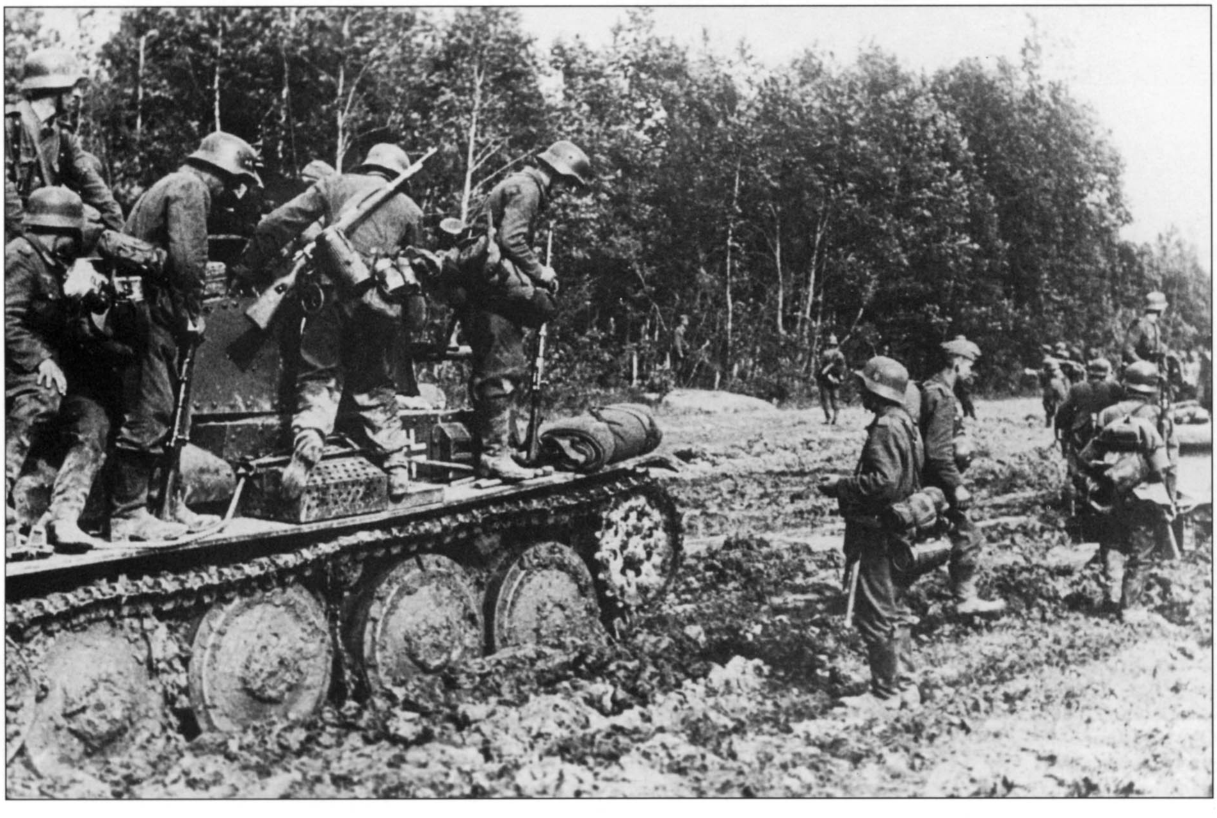
This up-armored T-34 Model 1942 was modified with additional armor by Plant No. 27. The pieces of added turret armor are easily seen in this photo. This type of modification was not popular among higher ranks of technocrats and politicians, who forced mass production of the T-34 as much as possible. They were more interested in more, rather than better, T-34s.



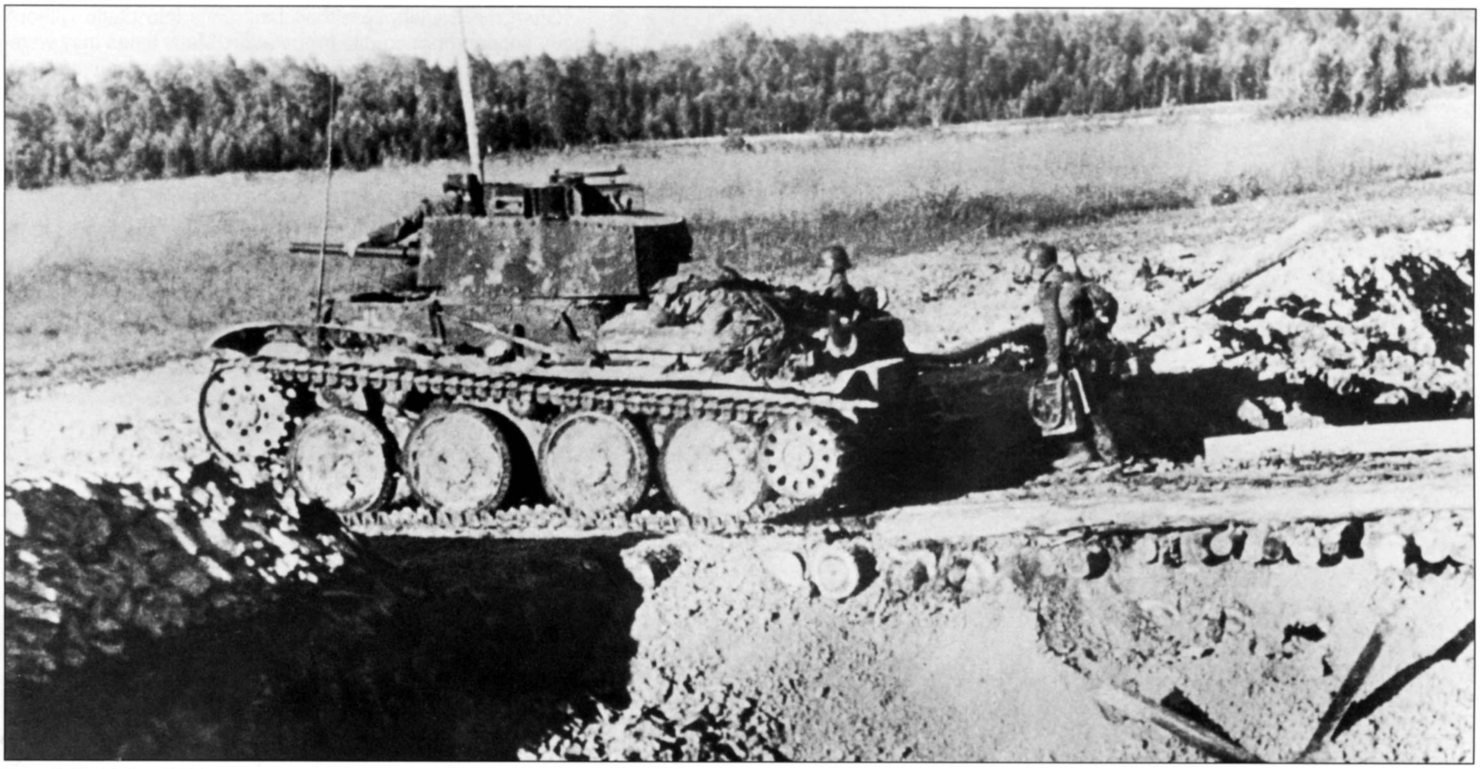
A T-34 Model 1943 with its hexagonal turret covered with unit markings typical of the 1942-1943 period is used as cover at an advanced position occupied by German infantry. Note that the triangle with the "41/6" code was painted over previous markings that are still just barely visible. The first T-34 Model 1943 with the new version of turret was introduced at the end of the summer of 1942 and immediately sent to the front in large numbers.



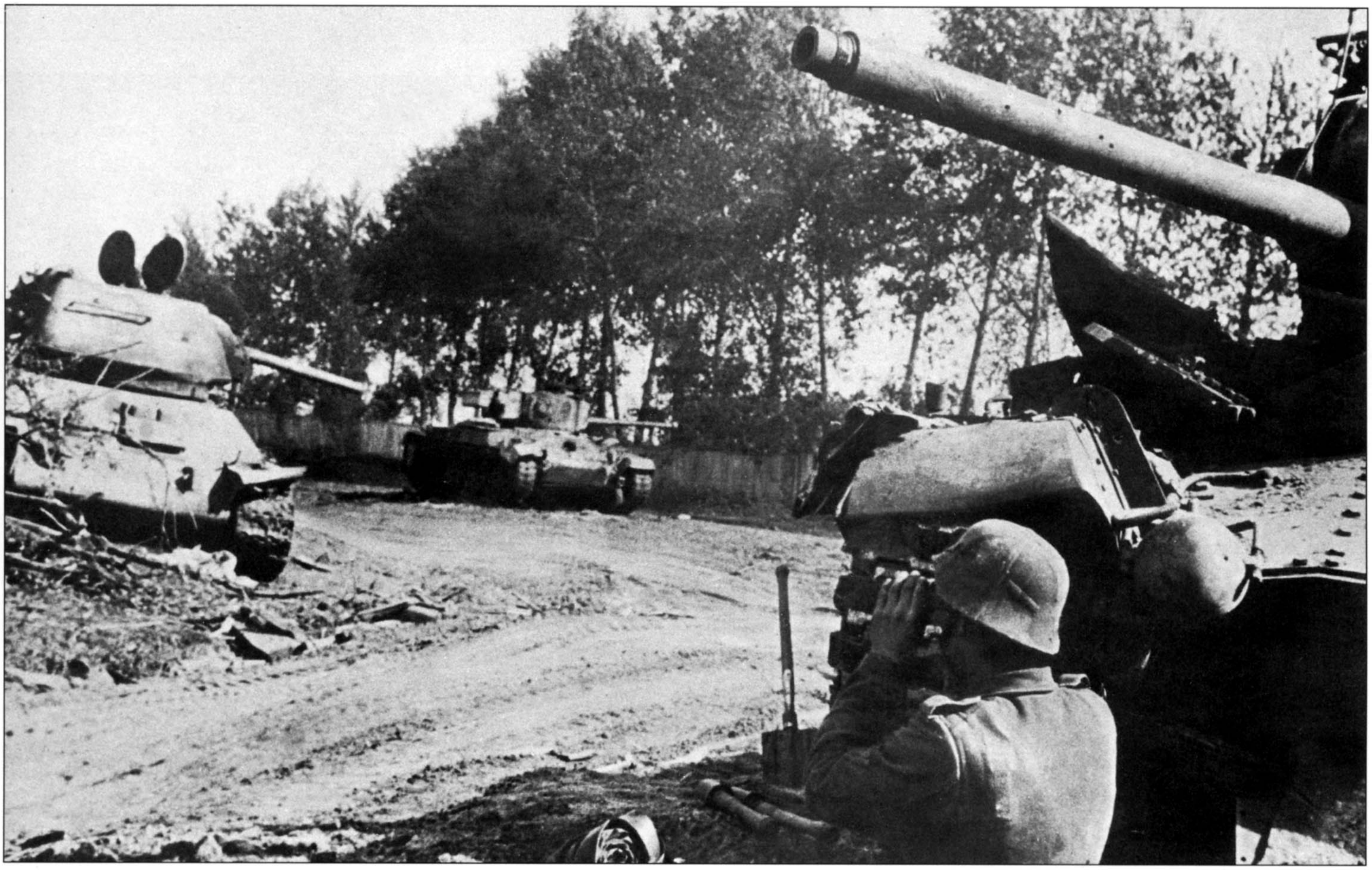
More battlefield litter that was left in the path of the advancing Germans. The tank was hit in the first road wheel (notice the hole) and the construction of the chassis was altered in this place. The road wheel is higher now, at a height even with the front idler. Note the small unit markings on the mud-covered turret. More important is the fact that the horse drawn wagon in the background is loaded with boxes of ammunition. This reflects the condition of the Red Army during most of the war. Soviet industry turned out tens of thousands of tanks and guns, but only a few light trucks, which had to be replaced by slow, small transport vehicles that were much weaker than tanks and more vulnerable to enemy fire.



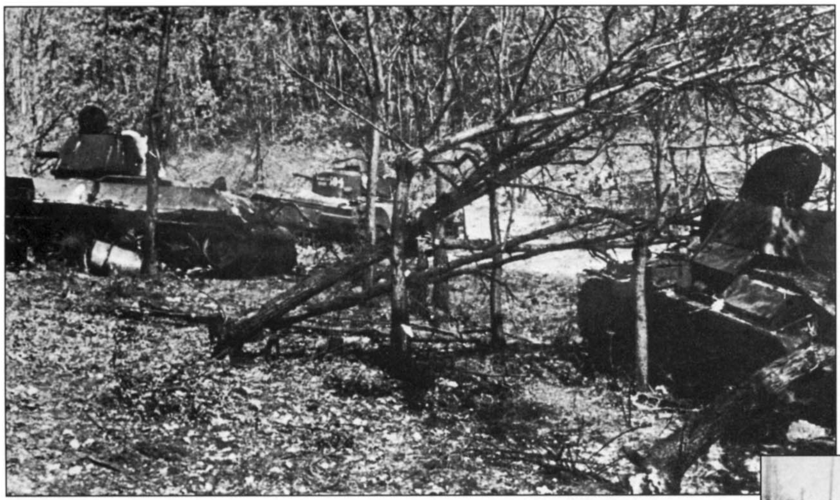
In August 1942 an infantry squad reluctantly dismounts from a Pz.Kpfw. 38(t), hesitant to jump down onto a road that has been transformed into mud. This Pz.Kpfw. 38(t) belonged to one of just a few Panzer divisions from Heeresgruppe Mitte that were involved in the action in the central sector of the Eastern Front during the last months of the summer. Several Panzer divisions — 1., 2., 19., and 20.Panzer-Divisions — were equipped with about 110 Pz.Kpfw. 38(t)s at the end of June/beginning of July, and all of them were weak units that were not capable of fulfilling any large-scale offensive mission.



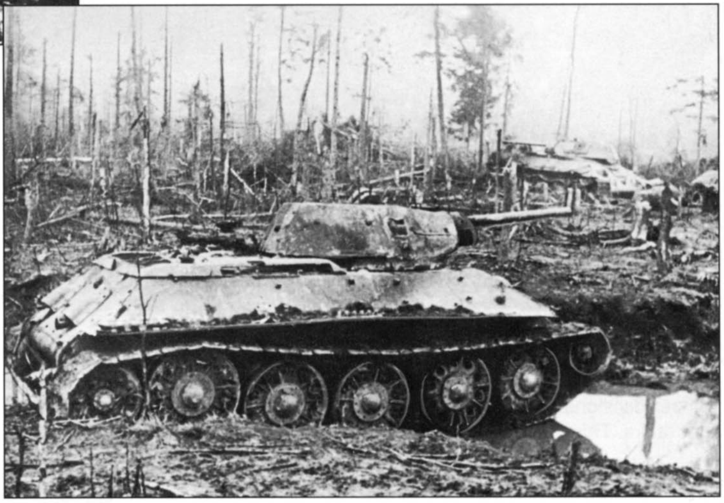
A Pz.Kpfw. 38(t) crosses over an anti-tank ditch (part of the Soviet defense system) during the bloody August 1942 battles west of Moscow. The offensive, which was called "Wirbelwind", began on 11 August then completely collapsed due to faulty German leadership and rainy weather, which made the terrain soft and rendered the roads difficult for tanks to travel on. The main formation engaged in this operation was 9.Armee, which was made up of four Panzer divisions, including the weak 1., 2. and 20.Panzer-Divisions. These units only had 40-80 tanks, including about 115 Pz.Kpfw. II and Pz.Kpfw. 38(t) light tanks. This Pz.Kpfw. 38(t) has no markings other than the white national cross painted on the side of the superstructure.



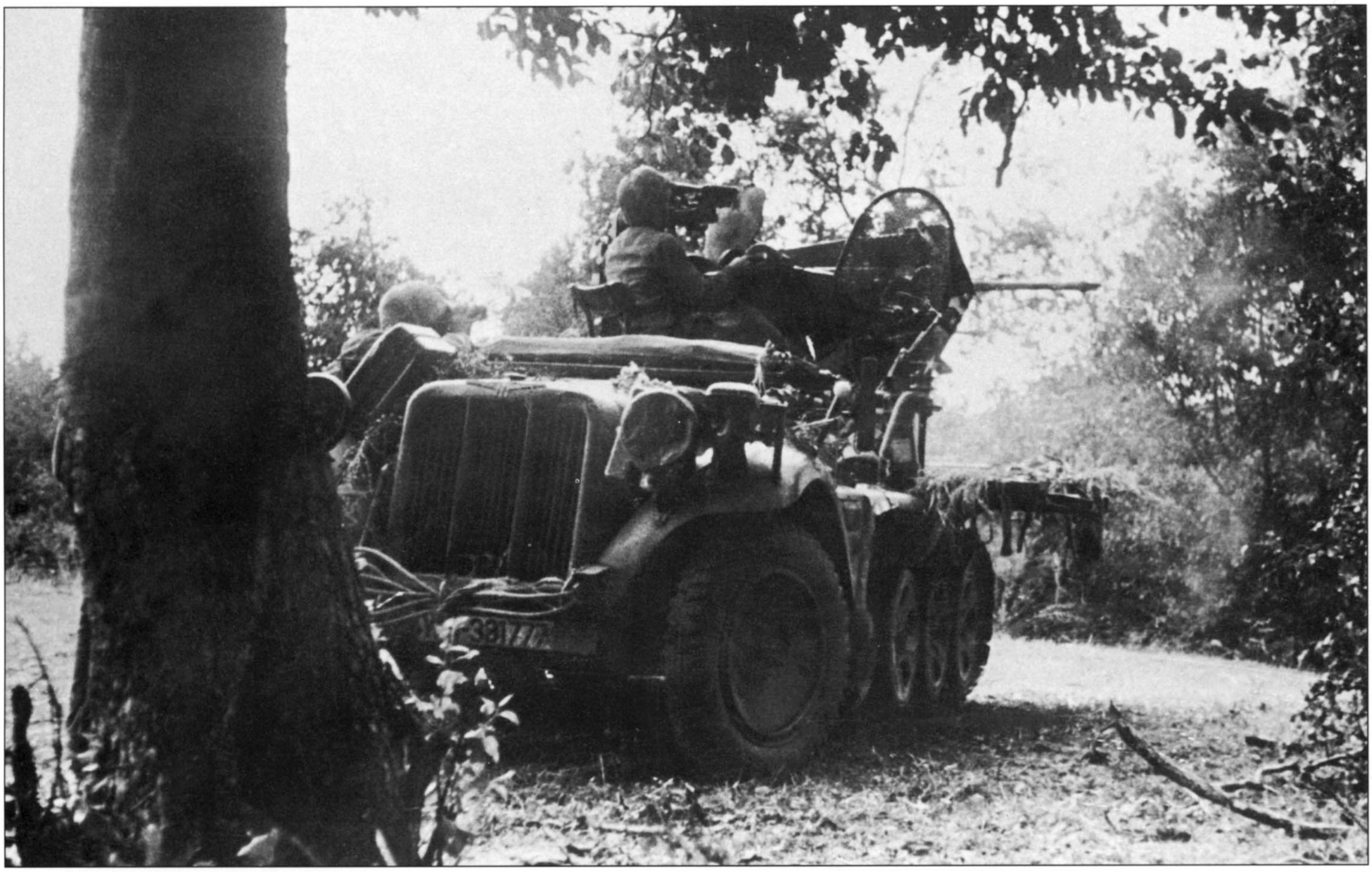
Vicious armored combat took place in the Western Front sector of the Soviet Union, where the Germans defended the front line in the Rzhev area and launched Operation "Wirbelwind" south of Vyazma. The Soviets concentrated strong armored forces in these areas. At the beginning of August the Rzhev area was attacked by 6th and 8th Tank Corps, supported by almost 15 tank brigades. During "Wirbelwind" the lead unit of the attack group, 11.Panzer-Division, was counterattacked by five armored corps. Many of these units were equipped with Lend-Lease tanks, such as the two destroyed British Valentine tanks seen in this photo.



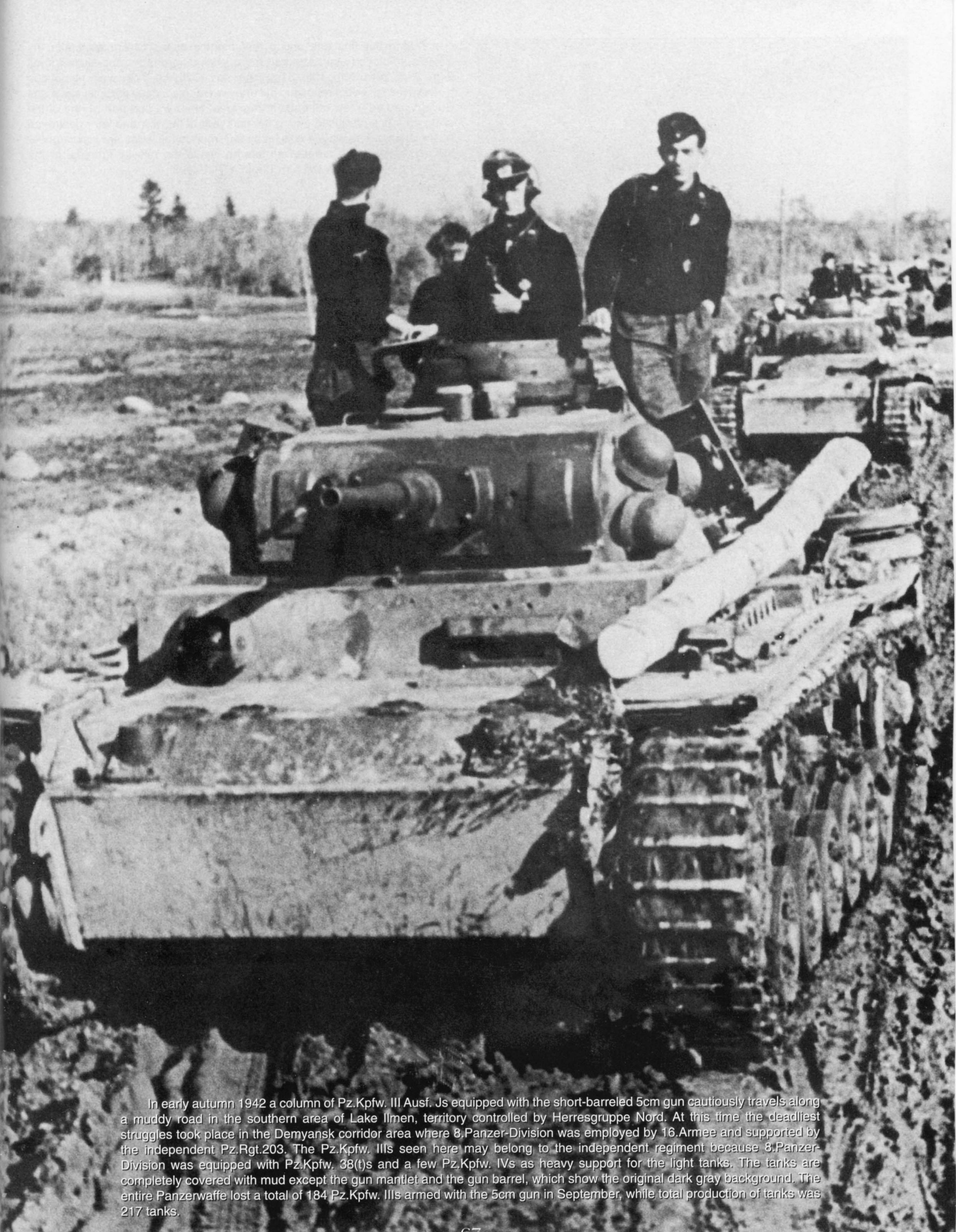
Often the Soviets sent their tank units into battle without infantry support or adequate preparation. Many times they were compelled to struggle through terrain that was totally unsuitable for armored combat, such as that seen in this photo. As a result the units suffered heavy losses. In the center of this photo we see another type of British tank sent to the Soviet Union, the "Churchill". The tank wears the tactical number "504" and an inscription, both in white. At left is a wrecked T-34, and a derelict T-70 is at right.



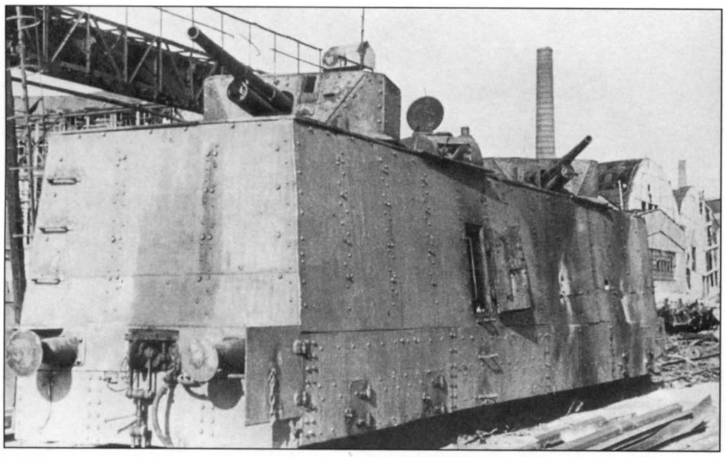
Soviet T-34s maneuver through a scarred forest after some furious combat. It is difficult to understand the thinking of Soviet military leaders who forced tank units to fight in forests, among trees and dozens of brooks, and on soft ground, when numerous infantry divisions and brigades were available. The tank seen in the foreground, which was produced by factory No. 112, lost all but one handle, probably due to a "storm" of hand grenades.



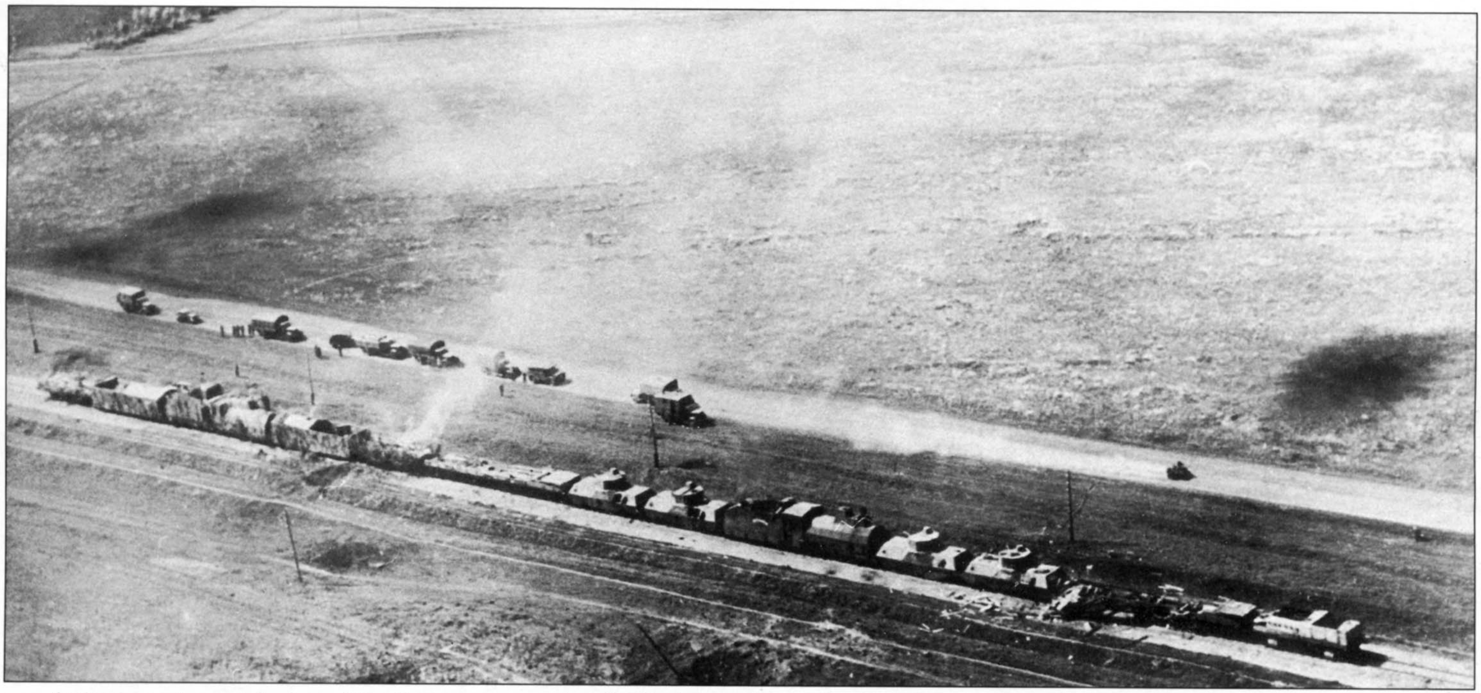
This Sd.Kfz. 10/4 was photographed at the height of combat on the outskirts of a forest. In these sectors of the front, where no armored units could operate freely, Flak units equipped with half-tracks were used as offensive weapons. These weapons were even effective against light armored vehicles.



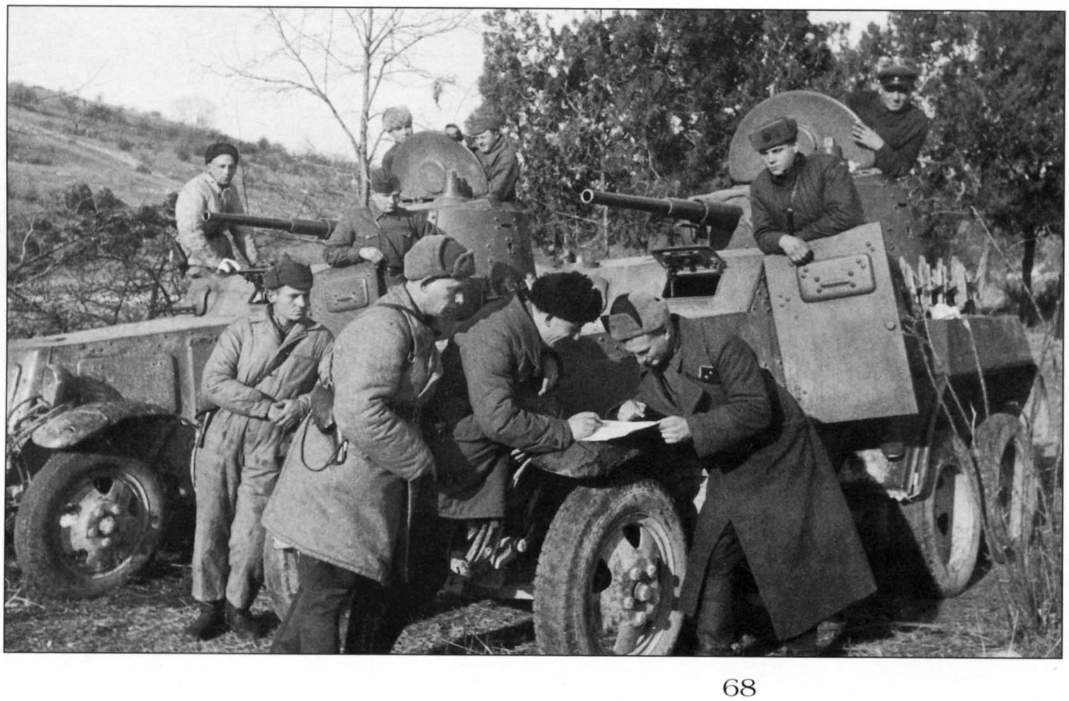
In early autumn 1942 a column of Pz.Kpfw. III Ausf. Js equipped with the short-barreled 5cm gun cautiously travels along a muddy road in the southern area of Lake Ilmen, territory controlled by Herresgruppe Nord. At this time the deadliest struggles took place in the Demyansk corridor area where 8.Panzer-Division was employed by 16.Armee and supported by the independent Pz.Rgt.203. The Pz.Kpfw. IIIs seen here may belong to the independent regiment because 8.Panzer-Division was equipped with Pz.Kpfw. 38(t)s and a few Pz.Kpfw. IVs as heavy support for the light tanks. The tanks are completely covered with mud except the gun mantlet and the gun barrel, which show the original dark gray background. The entire Panzerwaffe lost a total of 184 Pz.Kpfw. IIIs armed with the 5cm gun in September, while total production of tanks was 217 tanks.



During the first one and a half months of the Stalingrad battle the Soviets employed eight armored trains, including one for anti-aircraft duty: 24th, 25th, 28th, 30th, 40th, 51st, 59th, and 377th AA. They were useful due to their impressive firepower, but they were also easy targets since the Soviets had very few railroads in this area. Here we see part of one of the armored trains produced during the first year of the war and later destroyed by the enemy. The wagon was hit by four rounds (all holes are visible under the last gun), which created an inferno inside the railway fortress. In the middle of the wagon is the turret from a T-26 tank.

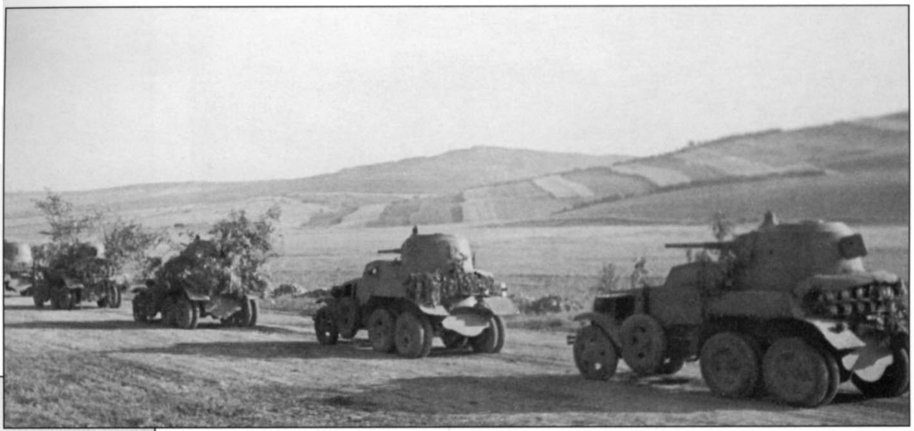


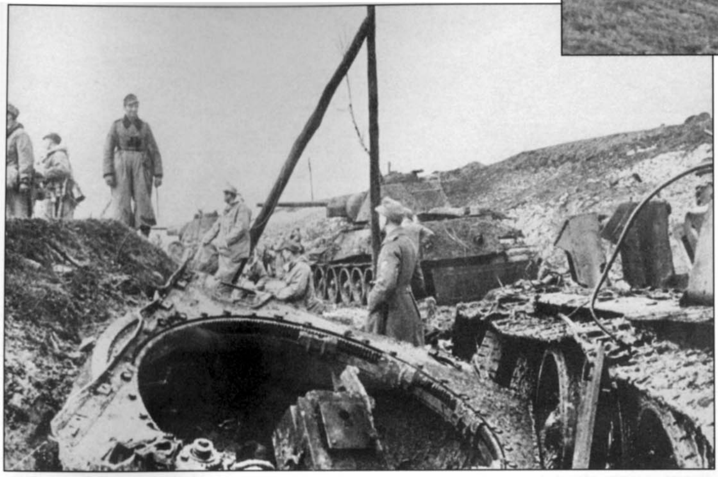
At the same time, at the foot of the Caucasus mountains, the Soviets put into action the last armored trains from the four squadrons (19th, 36th, 41st and 42nd), which put into service 12 armored trains at the beginning of the Caucasus operation. On 23 August two of them, commanded by Borodavko and Kuchma, were destroyed by tanks of 23.Panzer-Division while they covered the retreat of Soviet troops on the southern bank of the Terek river in the town of Prokhladniy. They carried on a gun battle across the river and destroyed 18 tanks, but there was only one railroad, so both trains were finally shot to pieces. This photo shows an armored train after its elimination by the Luftwaffe. It was one of over 100 knocked out during the first year and a half of war.



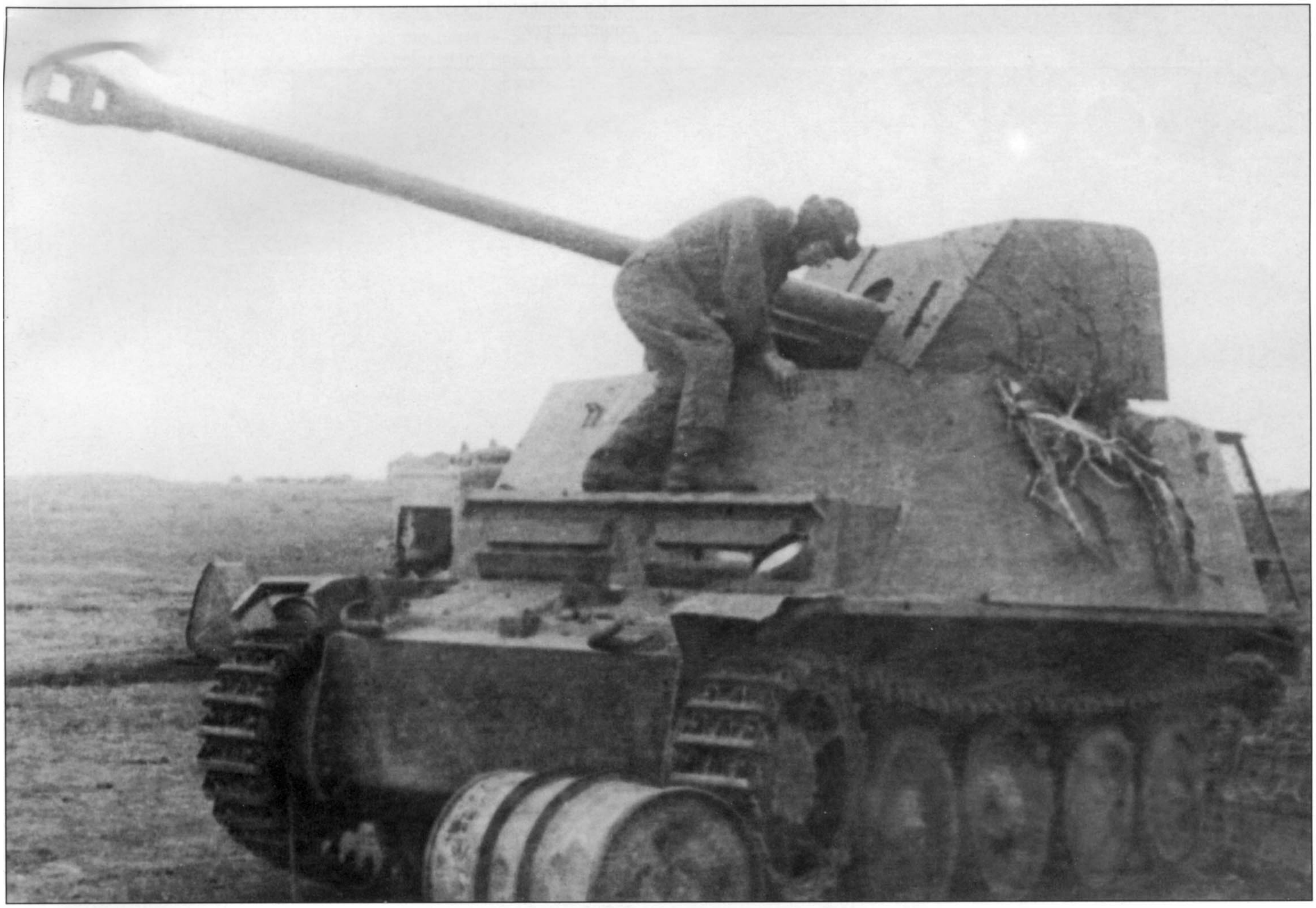
During the heavy fighting in Stalingrad, the Germans had no real problem with enemy on the steppes of Caucasus until they reached the foothills of the mass of mountains. The Caucasus mountains forced both sides to split their forces. It had been prepared for defense since the beginning of June 1942, so the mountains could not be crossed easily without preparation. The Germans had free passage in this area because the fighting in the great Don bend was very costly to the Soviets while taking a toll on the armor of the Trans-Caucasus Front. At the beginning of August there was not even one tank in five tank brigades and two tank battalions, while 14th Tank Corps had only 15 tanks. Therefore, sometimes only old types of armor were available for combat. Here officers of a unit equipped with BA-10s coordinate their strategy before entering action. Note the variety of uniforms for the autumn season.

A column of BA-10 heavy armored cars rolls along a road toward battle. Note the thick camouflage of foliage on the third and fourth BA-10s; they look like self-propelled clusters of trees.

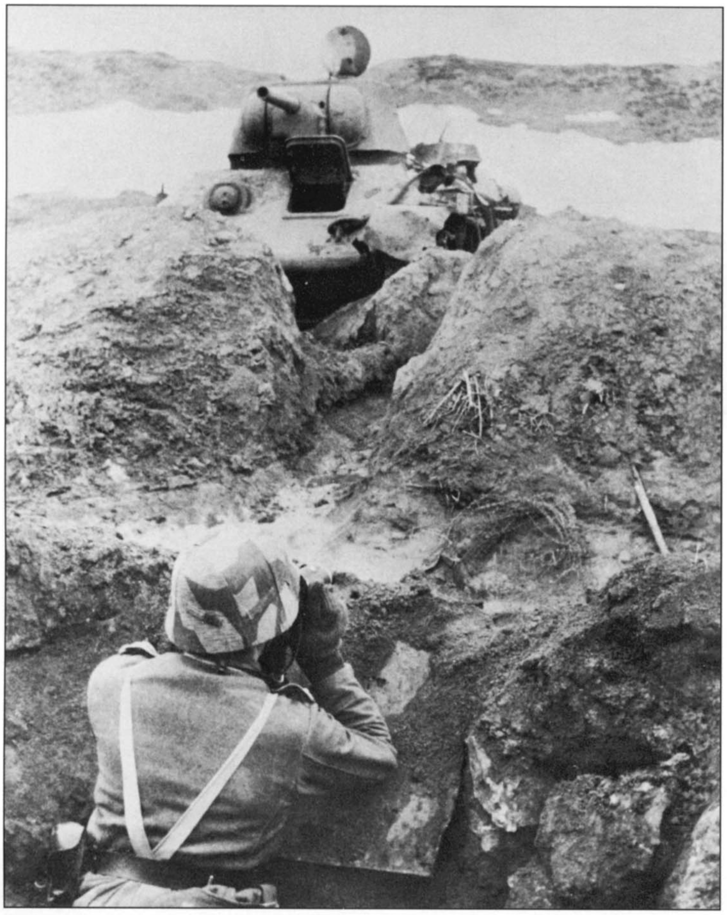


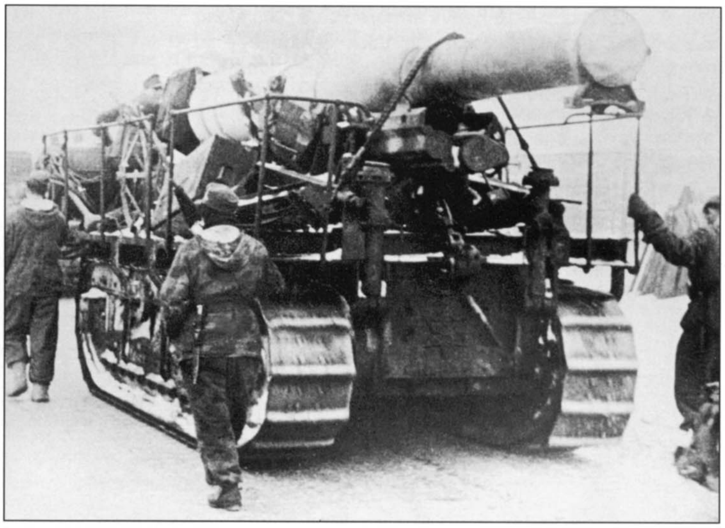


This is typical of the countless small valleys of death that became the final resting places for tank brigades from the Don Front north of Stalingrad in late autumn of 1942. All of the frenzied assaults of the Soviet 24th and 66th Armies ended in tremendous losses to the Red Army in front of the lines occupied by XIV Pz.Kp. It was a real slaughter of the tanks, which had to maneuver across numerous ravines, all the while braving enemy fire. The total losses of Soviet armor in this area are not known, but even the Soviets wrote that the hundreds of wrecked tanks created a view that was shocking. There is no exaggeration in that — the two motorized and one armored divisions of the XIV Pz.Kp. faced a much stronger Soviet force. At the beginning of September there were four weak tank corps and four tank brigades, but by the beginning of October only nine tank brigades existed.



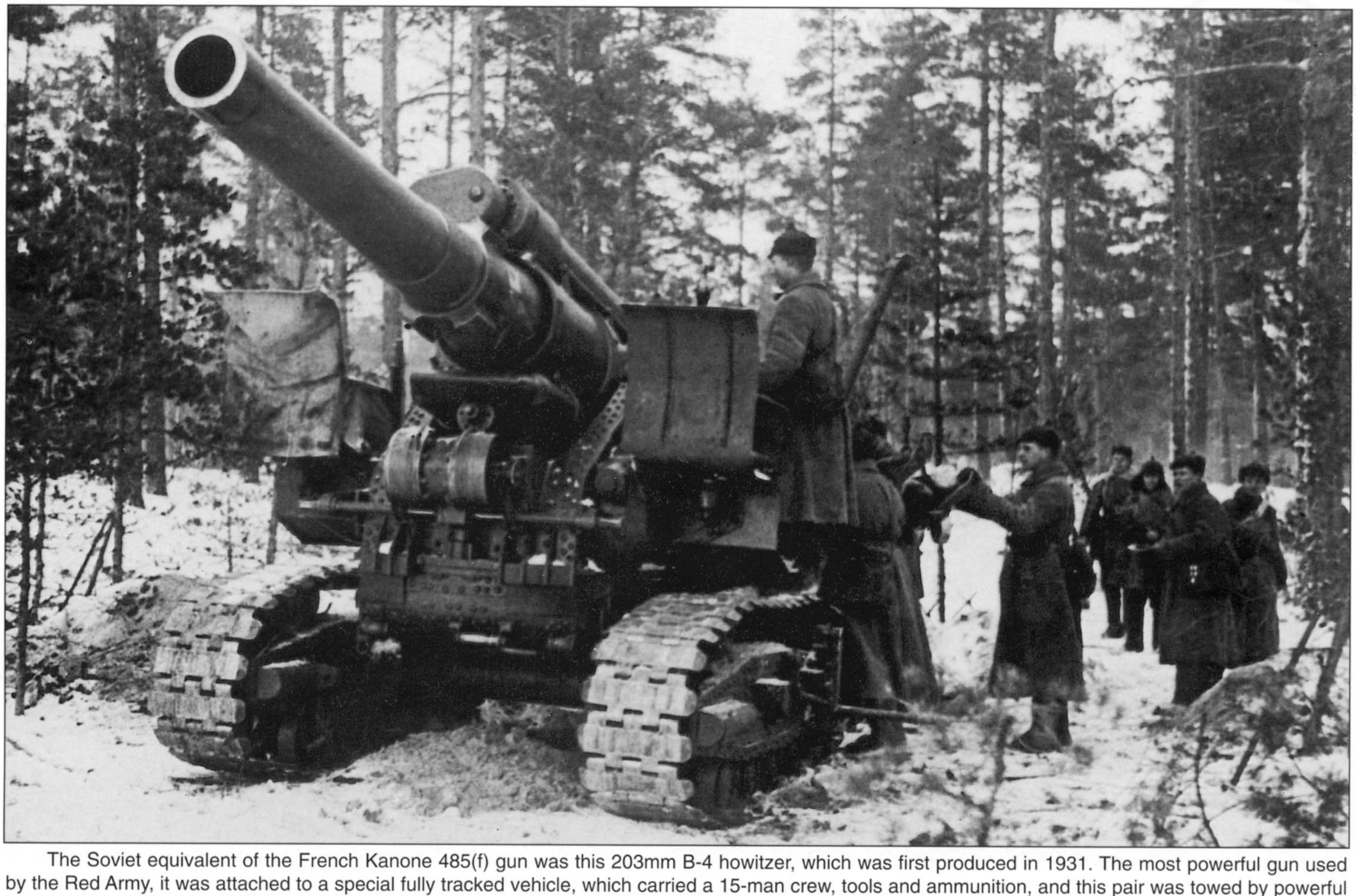
The Germans paid a price for their success, too, but it was not as high. In October 1942 the Panzerwaffe lost 196 tanks, 34 StuGs, and 24 Panzerjägers. Among the Panzerjägers were vehicles like this tank destroyer built on a Pz.Kpfw. II chassis and armed with a captured Soviet F-22 76.2mm gun (model 36 or 39). This self-propelled gun is known by several names, among them Pz.Jäg II or Sd.Kfz. 132, and sometimes the Marder I.



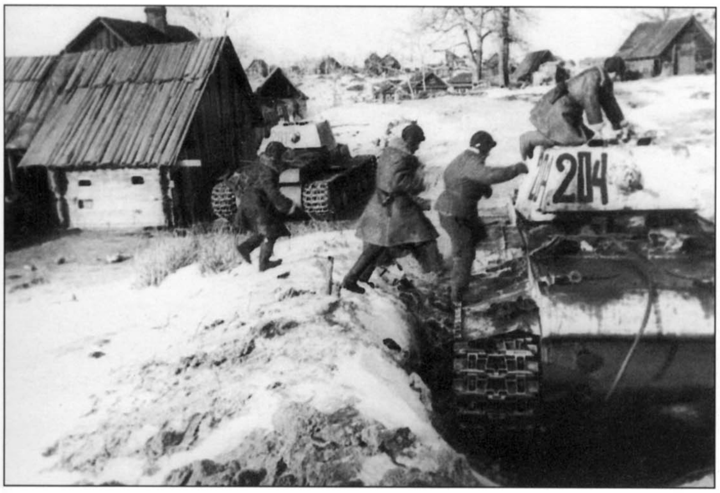


In 1942 the 194mm Kanone 485(f), the old French self-propelled gun produced in the mid-1930s, was sent into action in the northern sector of the Eastern Front for use in the siege of Leningrad. The vehicle is probably painted with French camouflage.

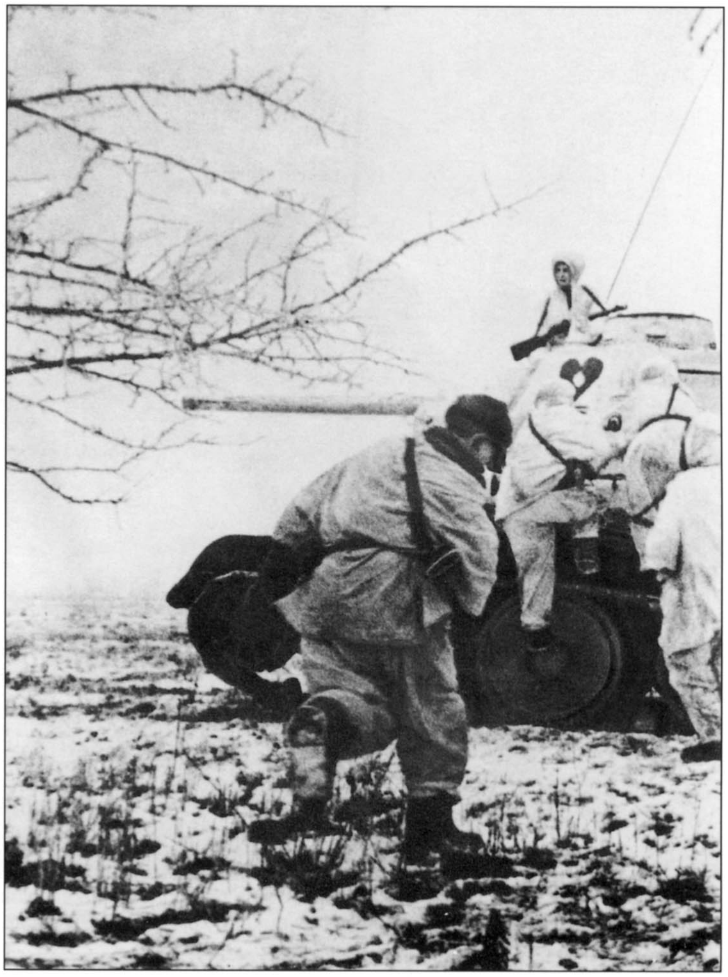
In early winter 1942, north of Stalingrad, a German soldier surveys no-man's-land, which is littered with the wrecks of Soviet tanks. Hundreds of them were strewn across the terrain in front of the defensive line of XIV Pz.Kp., destroyed by gunners and Luftflotte 4 crews during the frantic Soviet counterattacks.



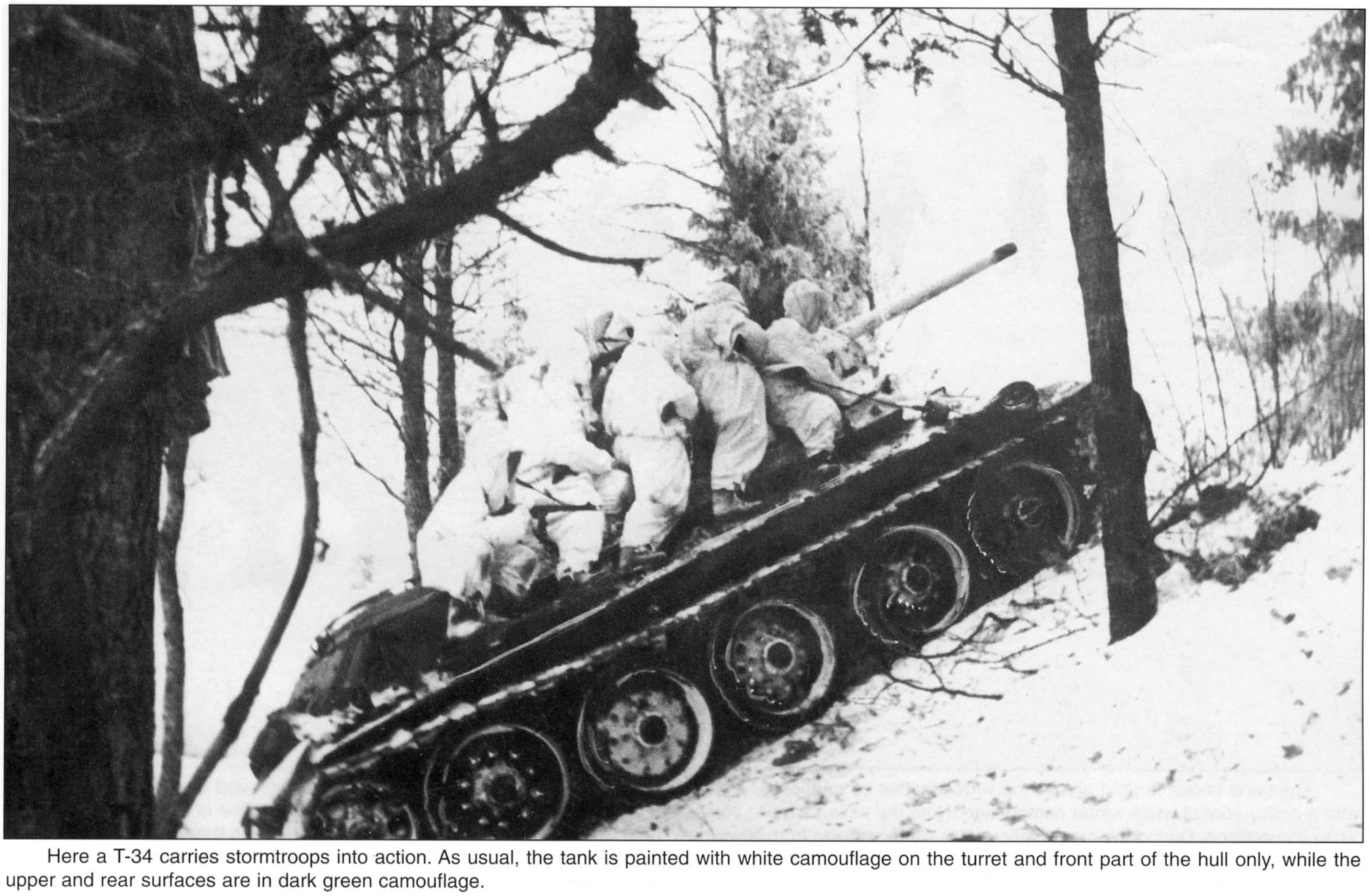
The Soviet equivalent of the French Kanone 485(f) gun was this 203mm B-4 howitzer, which was first produced in 1931. The most powerful gun used by the Red Army, it was attached to a special fully tracked vehicle, which carried a 15-man crew, tools and ammunition, and this pair was towed by powerful tractor. Due to shortages in production, the special tractor was often replaced by another — the S-65, for example. The lighter version of the gun was equipped with wheels, while the heavier version remained static.



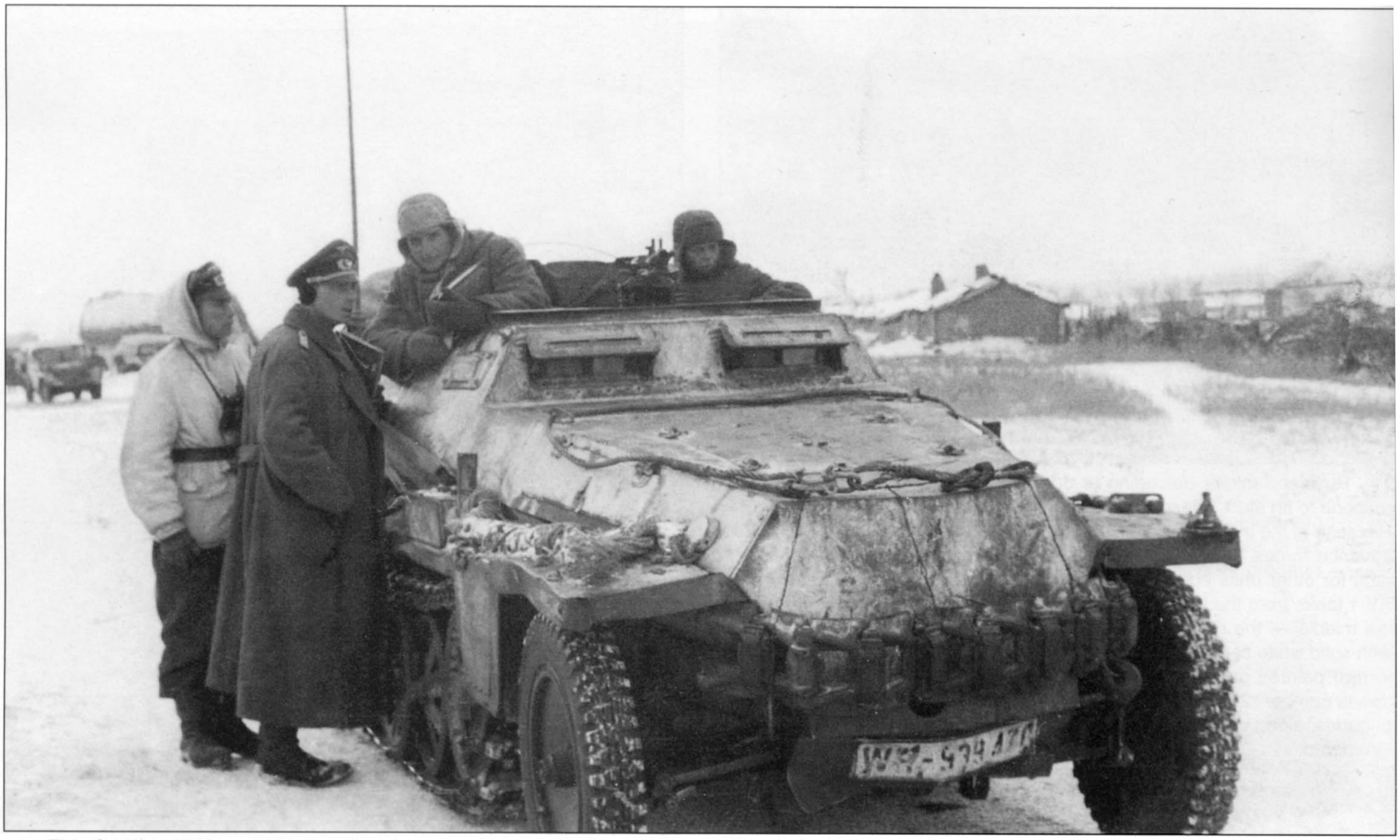
Russian tankers belonging to one of the so-called "break regiments" respond to an alert. These regiments were equipped with KV-1 heavy tanks. Because of the stronger armor of these tanks these regiments were used as advance forces, which punched their way through enemy lines to clear a path for other units equipped with lighter tanks. Here we see a platoon of KV-1 tanks from the Leningrad Front in the winter of 1942. Note the tank in the middle — the right mudguard is missing, and only its turret is painted with solid white camouflage. The tank has the number "201" (most probably in red) painted on all three sides of the turret, while the tank at the right sports number "204". The Soviets had one mechanized and seven armored brigades, along with two tank battalions, to contest the German blockade of Leningrad.



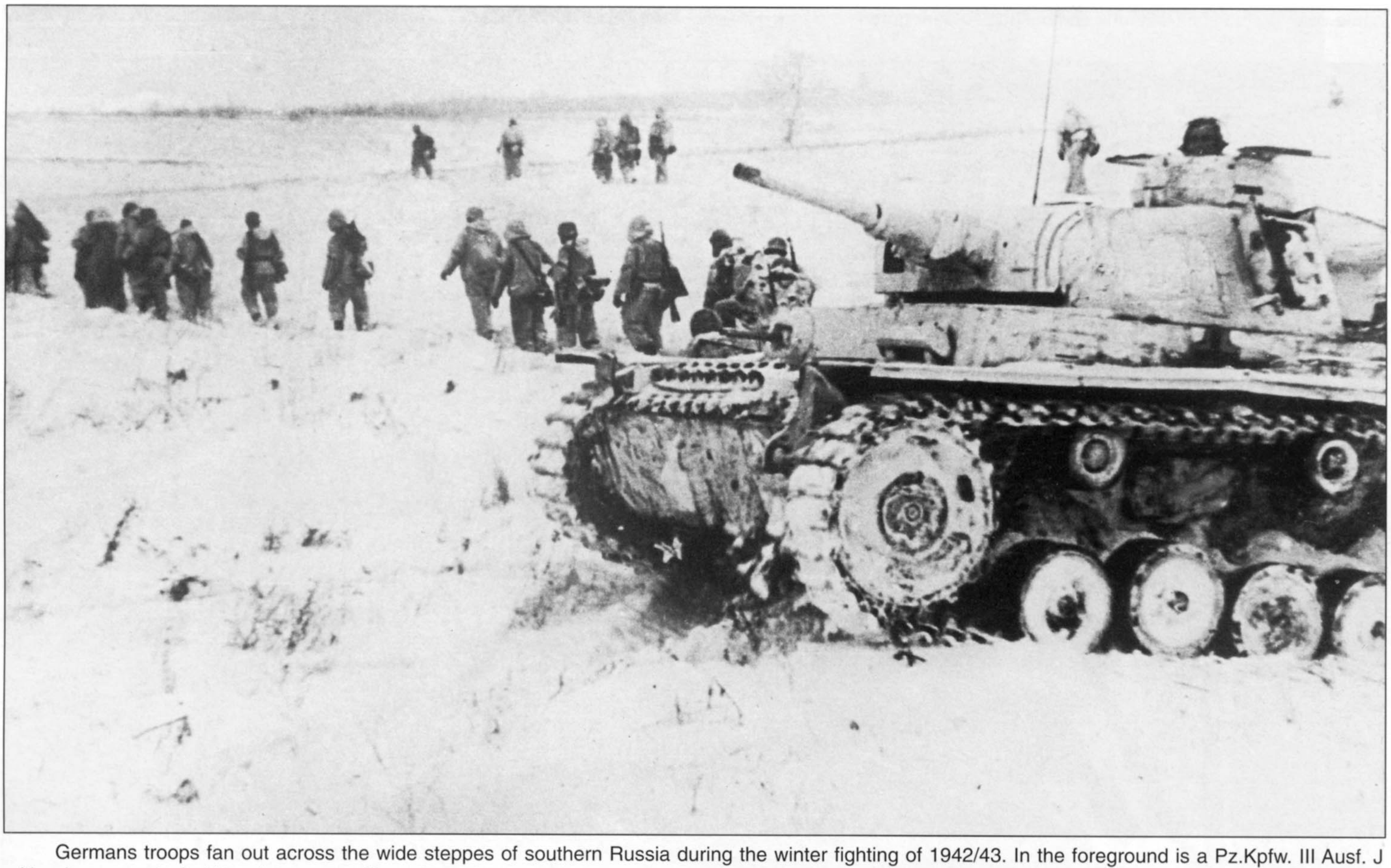
A T-34 goes into action with troops wearing winter camouflage uniforms. Note the atypical emblem on the turret — a heart with a drop inside of it. It is difficult to be sure of the color of the heart, but it may be the same color as the standard tank camouflage — dark green.



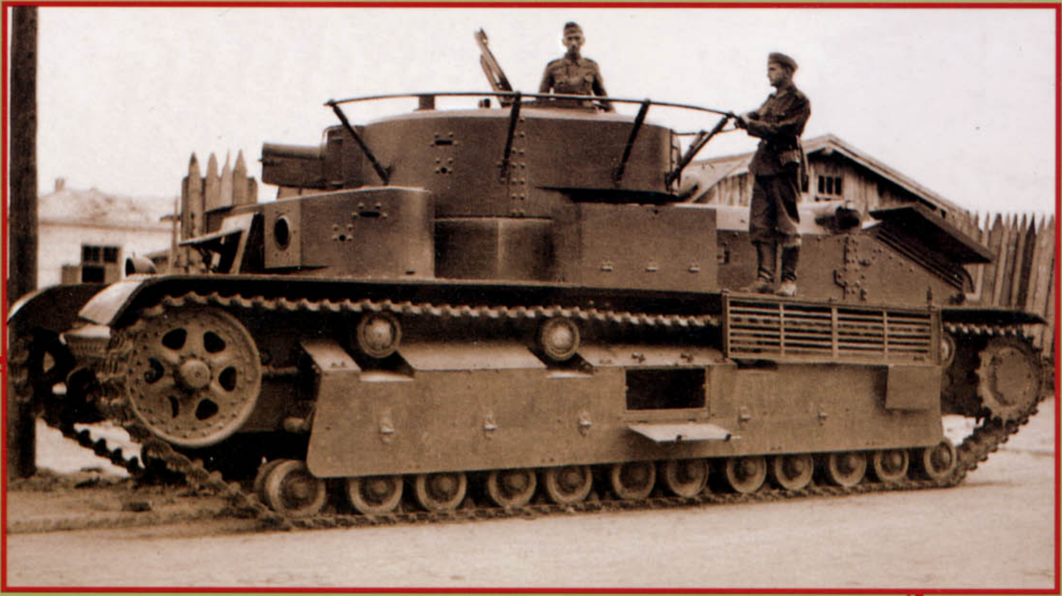
Here a T-34 carries stormtroops into action. As usual, the tank is painted with white camouflage on the turret and front part of the hull only, while the upper and rear surfaces are in dark green camouflage.



This Sd.Kfz. 250 from 22.Panzer-Division was photographed somewhere in Russia in the winter of 1942. The emblem of the division is painted on the right side of the frontal plate, and the license number is “WH 939476”. Note how the towline is affixed to the engine deck.



Germans troops fan out across the wide steppes of southern Russia during the winter fighting of 1942/43. In the foreground is a Pz.Kpfw. III Ausf. J with a heavy coat of white winter camouflage. Note the national cross painted on the side of the superstructure — its white outline is much darker than the white camouflage. During the great battle of this winter season from November 1942 to February 1943, which took place between the Causasus, Stalingrad and Kharkov, the Soviets lost almost 4,500 tanks, while the total losses suffered by the Panzerwaffe on all fronts were: around 2,600 tanks, about 320 StuGs, and about 230 self-propelled guns. Most of them — almost 1,700 of these vehicles — were lost in the Stalingrad conflict.



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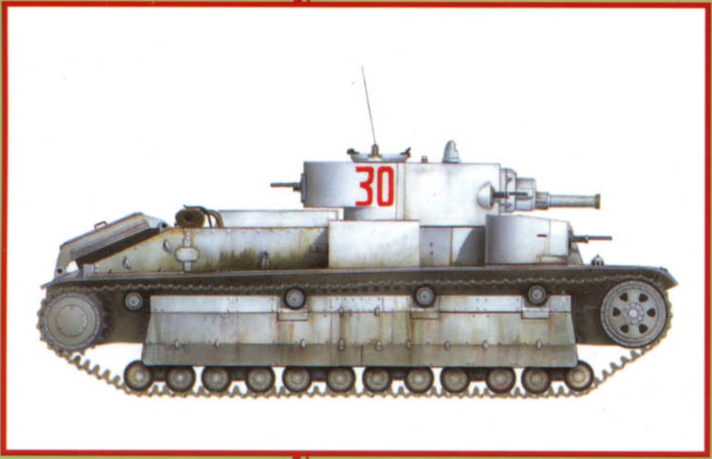
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